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Soil Separation Mobile Treatment Plant Demonstration, Bayport Confined Disposal Facility, Green Bay, Wisconsin

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October 2002

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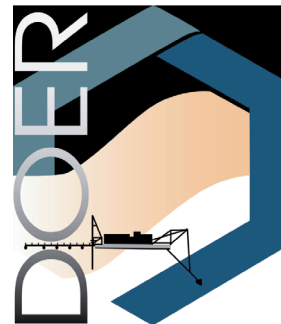
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Final report

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Dredging: Innovative Technology

Soil Separation Mobile Treatment Plant Demonstration, Bayport Confined Disposal Facility, Green Bay, Wisconsin (ERDC/EL TR-02-38)

ISSUE: Confined disposal facilities (CDFs) have historically been used for disposal of both clean and contaminated dredged material from navigational dredging projects. Many CDFs are nearing capacity. Removal of uncontaminated materials from the CDFs is a viable option for extending the life of these facilities. This approach carries the additional benefit of producing a marketable product for beneficial uses, which can potentially help to offset the cost of processing.

RESEARCH: The feasibility of physical separation as a volume reduction method has been demonstrated at several disposal facilities. A guidance document addressing principles of physical separation as they apply to soils and sediments, and identifying standard equipment, selection criteria, and potential sources was recently completed. Technical notes addressing recovery of materials from CDFs were also published under the Dredging Operations and Environmental Research (DOER) program. Work is ongoing at the U.S. Army Engineer Research and Development Center, funded under the DOER program, to develop bench-scale methods for economical preliminary feasibility evaluations.

SUMMARY: Preprocessing and separation equipment were tested in a one-day demonstration at Green Bay, WI. A 24-in. (0.6-m) maximum

density separator was used to separate sand from the bulk sediment. The target sand product specifications were less than 10 percent fines by mass and polychlorinated biphenyls (PCBs) concentrations less than 1 mg/kg. The underflow fraction averaged over 92 percent sand, as measured by a Coulter Counter. PCBs were reduced to 0.144 mg/kg PCB 1242 and 0.0119 mg/kg PCB 1260 in the sand, from 2.71 mg/kg and 0.145 mg/kg in the feed material, respectively. Based on statistical analysis of the results, the contaminant concentrations predicted for the sand fraction by the bench-scale testing were essentially equivalent to that achieved in the field operation. Distribution of metals was somewhat more variable than for PCBs, but metals were reduced by a factor of 2.6 to an order of magnitude in the sand fraction.

AVAILABILITY OF REPORT: The report is available in .pdf format on the World Wide Web at: <http://www.wes.army.mil/el/dots/doer/> and through Interlibrary Loan Service from the U.S. Army Engineer Research and Development Center (ERDC) Research Library, telephone (601) 634-2355, or the following Web site: <http://libweb.wes.army.mil/index.htm>.

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Preface

This report summarizes the evaluation of a special hydrocyclone configuration (the maximum density separator) for physical separation of sediments, and corresponding efforts to develop simplified, representative, bench-scale procedures for preliminary testing. This project was jointly funded by the U.S. Environmental Protection Agency Great Lakes National Program Office (GLNPO), GLNPO Identification No. GL98079, IAG 14947887-01, and the U.S. Army Corps of Engineers Dredging Operations and Environmental Research (DOER) Program under Work Unit 0054PD.

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At the time of publication of this report, Dr. James R. Houston was Director of ERDC, and COL John W. Morris III, EN, was Commander and Executive Director.

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1 Introduction

Background

Confined disposal facilities (CDFs) have historically been used for disposal of both clean and contaminated dredged material from navigational dredging projects where open-water disposal was not permitted. Many CDFs are nearing capacity. Removal of uncontaminated materials from the CDFs is a viable option for extending the life of these facilities. This approach carries the additional benefit of producing a marketable product for beneficial uses, which can potentially help to offset the cost of processing. Use of CDFs as rehandling facilities, with long-term storage for only the most contaminated sediments, is being investigated by the U.S. Army Engineer Research and Development Center (ERDC), in partnership with the U.S. Army Engineer District, Detroit, the Great Lakes National Program Office (GLNPO) of the U.S. Environmental Protection Agency (USEPA), and local port authorities.

The feasibility of physical separation as a volume reduction method has been demonstrated at Saginaw Bay (USEPA 1994), the Erie Pier CDF, Duluth/Superior Harbor (Olin and Bowman 1996) and Fort Myers, Florida (Granat 1998). Despite successful demonstrations at these locations and continued interest in the technology, physical separation has not yet been implemented as a standard operational practice, with the exception of the Erie Pier CDF. In part, this is due to the lack of internal expertise regarding physical separation and feasibility determinations, the cost of feasibility evaluations, and equipment availability.

A guidance document addressing principles of physical separation as they apply to soils and sediments, and identifying standard equipment, selection criteria, and potential sources was completed (USEPA 1999b). Technical notes addressing recovery of materials from CDFs were also completed under the Dredging Operations and Environmental Research (DOER) program (Olin-Estes and Palermo 2000a,b; Olin-Estes 2000). Work is ongoing at ERDC, funded under the DOER program, to develop bench-scale methods for economical preliminary feasibility evaluations. While bench-scale testing is a necessary first step, the limited volume of material that can be tested with these procedures cannot provide information regarding the potential heterogeneities of large quantities of material. Industry practice is to follow bench-scale testing with evaluation of an intermediate volume of material using a representative unit operation, such as a hydrocyclone. If these results are promising, a preliminary

treatment train is assembled and pilot-scale testing is conducted in the field. Costs to contract intermediate and pilot testing are typically high given that mobilization/demobilization and equipment costs are relatively insensitive to the volume being processed, and most vendors cannot accept contaminated sediments for pilot testing in-house. Availability of a mobile hydrocyclone unit could result in significant cost savings for feasibility evaluations and small-scale projects, and ultimately facilitate full-scale implementation of this technology. The long-term goal is assemble a mobile physical separation plant suitable for separation of sediments and dredged material to serve the Great Lakes CDFs.

Questions remaining to be addressed before full-scale implementation is feasible include the following:

- a.* The degree of bulking of residual materials, with and without flocculants, and the short- and long-term effects on CDF capacity recovery.
- b.* Alternatives for dewatering residual materials to minimize bulking effects, and their cost, effectiveness, and effect on suitability of residual materials for beneficial uses.
- c.* The relative benefit and feasibility of making finer separations (silt/clay) to recover additional material from CDFs.
- d.* Evaluation procedures for determining the potential contaminant levels in fine residuals and the effect on the regulatory classification of these materials.
- e.* Development of cost/benefit algorithms incorporating all of these considerations for economic feasibility evaluations.

Project Objectives

Identification and purchase of a portable hydrocyclone unit suitable for conducting separation feasibility evaluations and a small-scale field demonstration was the principal objective of this project. While the predominant focus is coarse material recovery for beneficial use as beach nourishment and construction fill (typically requiring the material to contain less than 10-15 percent fines), some beneficial uses will accommodate higher percentages of fine material. The silt/clay separation is expected to be an important long-range objective in maximizing material recovery from CDFs for material in which the silt fraction is substantially less contaminated than the clay fraction. Separation capability at the sand/silt interface (approximately 75 microns) with the additional capability of a silt/clay separation (at 2-3 microns) were therefore the principal operating specifications. Additional criteria were (a) level of expertise required for operation, (b) auxiliary equipment required to support operation, and (c) material preparation required. The equipment may also be used to address other information gaps, as previously described.

Identification of Available Equipment Types and Vendors

A wide variety of equipment is marketed for size and density separations within the mining industry. However, the equipment is typically designed for coarser and higher density materials. Although there is a significant body of knowledge pertaining to the principles of operation of individual pieces of equipment, there is little guidance in developing a treatment train for processing soils and sediments. Fines, often termed slimes, are considered an operational problem in the mining industry, and are removed as a waste stream prior to making the principal separations. Contaminated sediment separations, however, involve making efficient separations near or within that “waste” fraction, and require the ability to handle and even recover the finest residuals. The condition of the materials presented to the plant will be highly variable, depending upon whether they are consolidated materials excavated from a CDF, or mechanically or hydraulically dredged sediments processed at the time of disposal. In situ water content may vary from 50 to 150 percent, presenting difficulty in handling and in processing through equipment designed for dry (less than 10 percent moisture content), or noncohesive, material. Previous testing of laboratory-scale mining equipment has demonstrated that the feed limitations are not always well defined, and the normal operating parameters may not interface well with the separations of interest for soils and sediments. Even among Architect/Engineer firms with experience in soil washing, assemblage of a treatment train appears to be something of an art, with the configuration varying depending upon specific site conditions. The result is an unacceptable number of operational unknowns for the layman and highly localized expertise within the consulting industry, which ultimately translates to prohibitive cost.

The significant objective of this phase of the project then was to evaluate how the equipment industry has responded to the potential in the sediment remediation arena: identifying the critical core pieces of equipment necessary for the key separations of interest and the minimum necessary auxiliary equipment required in support. The desired outcome is a portable testing unit that (a) is economical to purchase and operate, (b) can be supported with widely available equipment, (c) is adaptable to operational conditions and constraints at different facilities, and (d) is technically simple, operable by field personnel with a reasonable amount of preliminary instruction and technical support.

Testing of Candidate Equipment

The core unit to be evaluated under this project was a hydrocyclone separator. Performance factors for the equipment considered for demonstration and purchase were as follows:

- a. The experience of the offeror in conducting size separation studies with dredged material and/or soil.
- b. Suitability of the equipment to separate sediment/soil at the 75- μ m target size cutoff.

- c.* Capability to produce a dewatered coarse product.
- d.* Suitability of the equipment to handle a variety of sizes and types of dredged material.
- e.* Portability of the unit.
- f.* Capacity of the unit.
- g.* Cost of the unit.
- h.* Cost of the demonstration.
- i.* Auxiliary equipment and site preparation requirements and costs.
- j.* Technical expertise required for operation.
- k.* Compatibility of equipment capacity with available storage area, water handling capability, and material preparation and feed capability at the demonstration site.

Preparation and auxiliary equipment requirements, adaptability, and technical expertise requirements were all relatively readily determined from product/offeree information and equipment design. Feed sensitivity and separation efficiency are best evaluated based on a performance test. It was anticipated that potential operational difficulties in this application and considerations of scale and logistics should come to light as a result of the demonstration. Samples were to be taken over a reasonable operating period to permit an assessment of the efficiency of the unit in making the desired separation, response to feed variations (if any), and the variability of the product material. A successful test would meet the separation criteria in a dewatered product, with a minimum of operational problems, at the specified efficiency. For the proposed demonstration, the specified cut point was 75 μm , with no more than 10 percent fines (percent by weight passing a No. 200 sieve) in the underflow.

2 Project Description

The Bayport CDF in Green Bay, WI (Figure 1), was selected as the field demonstration site. Green Bay is located on the eastern shoreline of Wisconsin, on Lake Michigan. Approximately 115,000 cu m (150,000 cu yd) of sediment are dredged annually, to maintain the 29-km- (18-mile-) long shipping channel in the Port of Green Bay. The Bayport disposal facility was filled to design capacity in the early 1970's. Brown County sought and received authorization to dispose of additional dredged material there. Current operations involve mechanical dredging, with transport and offloading at the CDF by truck. To extend the life of the facility as long as possible, material is periodically removed from the facility, following a period of dewatering. The facility is divided into separate cells to permit offloading, dewatering, excavation, and stockpiling to occur concurrently. The Brown County Port Authority has taken an active interest in innovative management alternatives for dredged material, and the Bayport CDF was also recently the site of a biotreatment demonstration.

Project Activities

ERDC physical separation equipment available for demonstration/testing support was inventoried and its operational status verified. Response to an advertisement for technical support in identification of equipment alternatives and sources and development of a basic treatment train was limited (one firm responded) and exceeded the project budget for this task area. An extensive in-house effort was therefore initiated to locate off-the-shelf equipment, and to identify those firms with interest in conducting a small demonstration and with availability of suitable scale equipment for preliminary field evaluation. Of the vendors contacted, only two indicated an interest in bringing equipment onsite for a small-scale demonstration: Tri-Flo Industries, Ltd., of Conroe, TX, and MetPro Supply, Inc., of Bartow, FL. Only one, MetPro Supply, responded to the advertisement for bids.

Tri-Flo Industries manufactures mobile, self-contained, fluid-processing equipment. Initially targeting the drilling industry, hydrocyclones mounted in series to a prefabricated header can be purchased, as well as complete, mobile, micro-fluid systems (MFS) designed for drilling mud recovery. These systems include a sump, mud "guns" for maintaining sediment in suspension, a shaking screen, hydrocyclones, and pumps. The configuration appears to have potential for sediment separation, but prescreening of gross oversize and slurring of consolidated material would likely be needed to utilize the equipment as

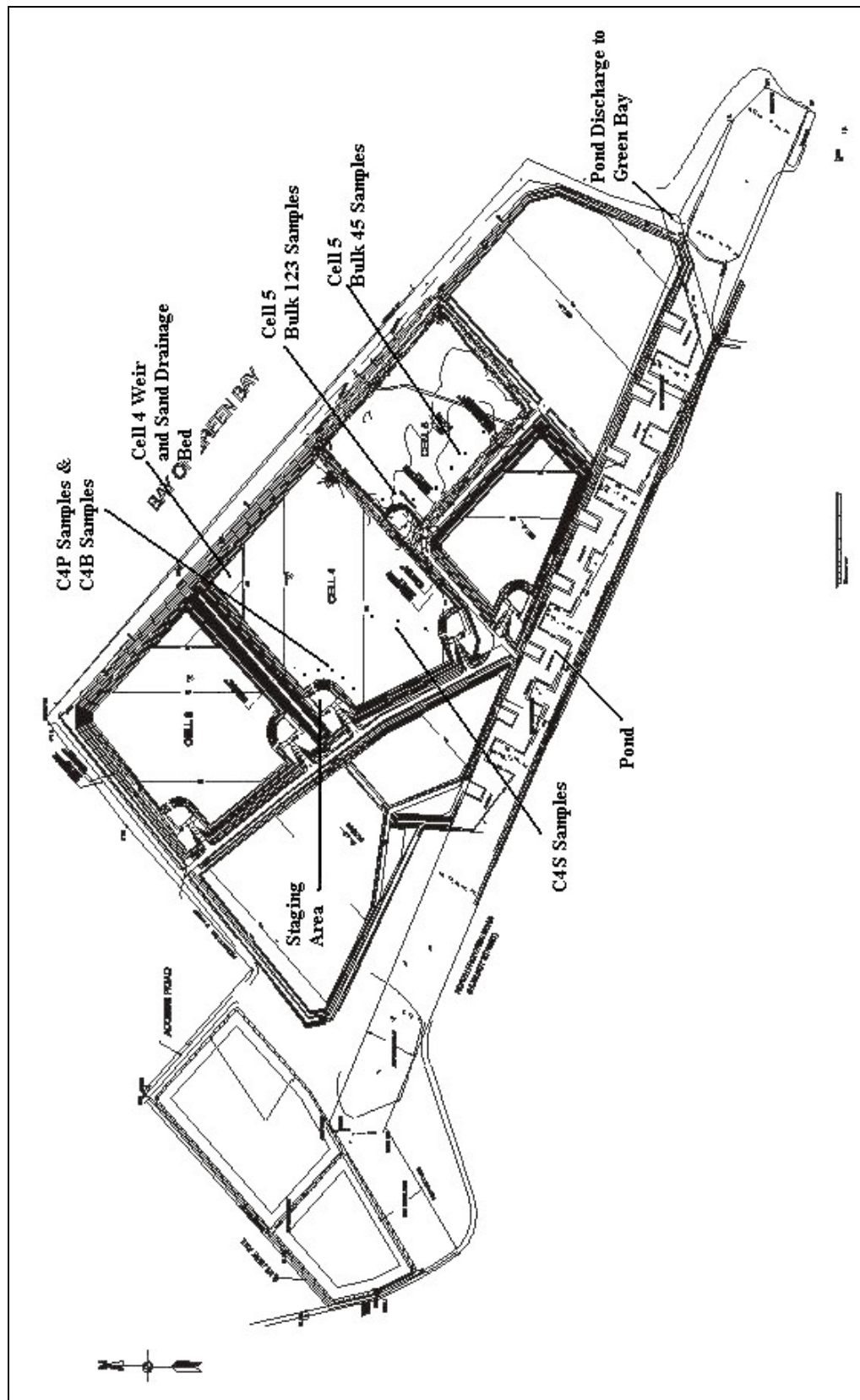


Figure 1. Green Bay Bayport CDF

presently equipped. One advantage to the configuration was the potential for making the sand/silt separation on the screen, followed by a finer cut at the hydrocyclones, thus addressing both size separations of principal interest with one unit. Tri-Flo also manufactures a mud pump that could be useful for excavating and slurrying consolidated material. The mud pump is equipped with an integral screen that prevents the pump from picking up oversize particles. Principal limitations of the equipment were the potential for blinding of the screens, the inability of screens to separate coarse organic materials from coarse minerals, and the fact that this equipment has not been demonstrated for dredged material or sediments.

MetPro Supply manufactures a self-contained maximum density separator (MDS) consisting of a trailer-mounted sump, slurry pump, and MDS. Both 0.15- and 0.3-m (6- and 12-in.) MDS have been demonstrated on sediments in the U.S. Army Engineer District, Jacksonville. Based on previous testing, MetPro recommended a 0.61-m (24-in.) MDS to produce a coarse fraction with less than 10 percent fines entrained. A 0.61-m (24-in.) MDS has a throughput of approximately 4.5 cu m (1,200 gal) per minute (approximately 68,039 kg (75 tons) solids per hour), and can accept particles up to 25-38 mm (1 – 1-1/2 in.) in diameter, thus simplifying prescreening. Dry or slurried material could be fed to the sump, with adjustments to the volume of makeup water supplied. The MDS differs from a conventional hydrocyclone in that a flexible sleeve is attached to the apex of the cone, and a vacuum is applied to the overflow line, thus restricting discharge of underflow until sufficient weight accumulates to force discharge. This reportedly results in a higher solids underflow.

Because of the potential variability in feed requirements, the offerors were tasked with providing the necessary auxiliary equipment to support the proposed separation unit, in effect developing a compatible treatment train. Mechanical excavation and prescreening were to be handled by the Detroit District. Auxiliary equipment was located in the Green Bay/Milwaukee area. A powerscreen for prescreening material; water supply pump; flexible, quick-coupling water hoses; and generator were available and obtained as short-term rentals.

Because the target separation of the proposed equipment was 75 μm , it was necessary to locate material containing sufficient sand to permit evaluation of the efficiency of the equipment in making this separation. Based on anecdotal information, Cell 5 was initially identified as containing sandy material from the outer harbor. Core and near-surface bulk samples were taken from Cell 5 for evaluation. However, finer material had apparently been placed over the target material, and the near-surface dredged material contained little sand. Additional samples were therefore taken for evaluation from Cell 4, where additional coarse material had recently been placed. (This material was from an inner harbor dredging project, and may not be representative of outer harbor sandy sediments).¹ Sampling, sample handling, and bench-scale testing are further detailed in subsequent sections of this report. Approximately 380 cu m (500 cu yd) were

¹ Dean Haen, Personal Communication, 5 November 2001, Port Manager, Brown County Port and Solid Waste Department (Port of Green Bay), Green Bay, WI.

also excavated from Cell 5 for evaluation of material handling properties and effects of debris on ease of excavation as part of a cooperative effort funded under the DOER program. Some of this material was processed through the powerscreen to evaluate performance of a dry screen with wet of optimum material, and to evaluate the feasibility of feeding the hydrocyclone using mechanical excavation and prescreening. A smaller volume of material was excavated from Cell 4 for comparative processing through the screen. The remainder of the Cell 4 excavation was accomplished hydraulically, at the time of the demonstration.

Field Sampling and Sample Handling

Nineteen 25.4-mm- (1-in.-) diameter cores were taken from Cell 5 of the Bayport CDF (Figure 1) to assess moisture content of the material initially proposed for processing. The cores were taken from along the truck dump and the south dike, areas accessible for mechanical excavation, using an AMS Soil Core Sampler with slide hammer, including stainless steel soil collector, and 25.4- by 0.6-mm (1- by 24-in.) butyrate plastic liners with polyethylene caps. (Although 0.6-m (24-in.) tubes were used, in many cases only 0.15-0.5 m (6-18 in.) of dredged material was recovered due either to the compressibility of the material or the inability to drive the sampler deeper.) Five 19-L (5-gal) samples intended for bulk sediment chemistry and fractionation testing were taken along the same perimeter and placed in high-density polyethylene (HDPE) buckets, using a shovel decontaminated with acetone and distilled deionized (DDI) water between samples. Each bucket was placed in a cooler and packed in ice for shipment. Chain-of-custody forms were placed inside the coolers and coolers were sealed with tape and chain-of-custody seals. Chain-of-custody seals were intact upon receipt at the laboratory. Temperatures of the samples upon arrival were below 4 °C (1.7 to 3.3 °C), with the exception of Bucket 4, which was 5 °C. Core samples were not intended for chemical analysis and were therefore not refrigerated. They were left in the disposable plastic liners and shipped together in a cooler for later extrusion.

Before samples were taken from Cell 4, representative material was screened in the field to verify the presence of sand. Based on the field screening, the Cell 4 material along the northwest truck dump was roughly estimated to contain 40 – 50 percent sand. Samples were subsequently taken for laboratory analysis along the northwest truck dump (adjacent Cell 2), and along a radius from the southwest truck dump (adjacent Cell 5 and the road) toward the outlet. Because this was a duplicate effort, a repeat full-scale sampling effort was not feasible. Smaller sample volumes were therefore obtained during a subsequent site visit and progress meeting.

Twelve 0.9-L (1-qt) glass jars were obtained from Cell 4: three for bulk chemical analysis (C4B1-C4B3), six for particle size analysis (C4P1-C4P6) from the perimeter of the northwest truck dump, and three (C4S1-C4S3) for particle size analysis along the inner radius. Sample preservation and chain of custody were observed as for the Cell 5 samples.

Characterization and Bench-Scale Testing

Cell 5 characterization and bench-scale testing

The three 19-L (5-gal) samples taken from along the truck dump were mixed together (Buckets 1, 2 and 3 identified hereafter as Bulk 123 composite) and homogenized. The two 19-L (5-gal) samples taken along the dike (Buckets 4 and 5 identified as Bulk 45 composite) were also combined and homogenized. Wet chemistry, moisture content, and particle size distribution were evaluated on both composites. Because these parameters were relatively comparable for the two composites, one was selected for fractionation testing, rather than compositing the total volume. Bulk 123 was selected because of the greater accessibility of the area from which those buckets were taken, and the greater likelihood that they would be excavated. The cores were extracted from the plastic tubes, and samples were taken for water content analysis.

Particle size analysis. Subsamples of the Bulk 123 and Bulk 45 composites were analyzed on the Coulter particle size analyzer. Both composites contained over 90 percent fines.

Bulk sediment chemistry. The Bulk 123 composite and Bulk 45 composite were analyzed for polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), metals, total organic carbon (TOC), total recoverable petroleum hydrocarbons (TRPH), and oil and grease (O&G) (the latter three being potential indicator compounds). Results are summarized in Table 1. Concentrations were comparable for all analytes for both composites.

Water content analysis. The core samples (44 total) were analyzed in duplicate for water content ($w = (M_{\text{water}}/M_{\text{solids}}) \times 100$) by oven drying. The average water content was 112.4 ± 24.6 percent. Water content of the Bulk 123 and Bulk 45 composites averaged 98.7 and 82.2 percent, respectively.

Fractionation testing. Approximately 10.5 kg (wet weight) of the Bulk 123 sample was wet sieved through a 75- μm sieve for analysis of the sand ($>75 \mu\text{m}$) and fines ($< 75 \mu\text{m}$) fractions. The resultant slurries were centrifuged and the solids retained for particle size and chemical analysis. Both fractions were analyzed on the Coulter LS100 Particle Size Analyzer to determine the efficiency of the separation. The results (Table 2) show that the fines were not very effectively removed from the sand. Further separation of the clay and silt from a subsample of the fines was attempted using an upflow column. The clay was never effectively removed from the fines, and the samples were therefore not further analyzed.

Additionally, a subsample of the Bulk 123 was fractionated by density using heavy media separation in order to analyze the contaminant differences between mineral and organic sediment material. In this procedure, the sediment was combined with a solution of sodium polytungstate at a specific gravity of 2.0. The mixture was briefly sonicated and then centrifuged to separate the density fractions. The material heavier than 2.0 specific gravity (mineral) sank to the bottom, and the lighter fraction (organic) floated on top of the solution and was

Table 1 Green Bay Cell 5 Chemical Analysis of Bulk Sediment, Size, and Density Fractions						
Description	Bulk Sediment		Size Fractions		Density Fractions	
	Composite 45	Composite 123	<75 µm (Fines)	>75 µm (Sand)	>2.0 sp.gr. (Mineral)	<2.0 sp.gr. (Organic)
Indicator Analytes						
TOC, mg/kg	44833	48567	41300	38900	27800	47700
O&G, mg/kg	147	213	210	1030	67	640
TRPH, mg/kg	78	106	106.5	525	54	350
TVS, %					<4	<4
Metals, mg/kg						
AS	3.29	3	2.95	3.55	1.8	2.99
CD	0.939	1	0.825	1.11	0.669	1.94
CR	53.33	52	47.05	50.65	41.3	85.2
CU	48.93	52	43.85	72.7	27.3	97.2
PB	68.8	64	58.3	76.8	40.9	51
HG	1.017	1	1.0345	1.44	0.625	2.2
NI	20.53	22	19.85	17.2	17.2	17.4
SE	1.06	1	0.95	1.55	0.599	0.998
AG	0.53	0	0.45	0.3	0.4	0.599
ZN	142.7	143	154	145.5	91.5	128
BA	81.70	83	77.95	57.65	70.7	73.5
FE	16300	16300	15500	10750	14600	7850
MN	442	485	436	832	382	434
MO	0.265	0	0.3	0.4	0.2	0.699
PCBs, µg/kg						
PCB-1016	<22.5	<24.5	<24.5	<29.7	<15.8	<27.1
PCB-1221	<22.5	<24.5	<24.5	<29.7	<15.8	<27.1
PCB-1232	<22.5	<24.5	<24.5	<29.7	<15.8	<27.1
PCB-1242	1307	1161	970	1742.5	351	3278
PCB-1248	<22.5	<24.5	<24.5	<29.7	<15.8	<27.1
PCB-1254	<22.5	<24.5	<24.3	<29.7	<15.8	<27.1
PCB-1260	49.5	52.3	39.95	77.9	27.3	111
PAHs, µg/kg						
NAPHTH	125	165.3	85.95	367	29.9	513
ACENAY	9.0	10.0	<20	41.2	<6.4	43.4
ACENAP	14.3	21.6	11	61.85	<6.4	72
FLUORE	36.2	42.5	27.75	123	10.8	169
PHENAN	220	269.3	176	877	70	1180
ANTRAC	39.8	49.7	29.2	193.5	10.2	215
FLANTHE	309	388.0	260.5	1130	99.9	1690
PYRENE	301	391.7	240	1360	82.1	1570
(Continued)						

Table 1 (Concluded)						
Description	Bulk Sediment		Size Fractions		Density Fractions	
	Composite 45	Composite 123	<75 µm (Fines)	>75 µm (Sand)	>2.0 sp.gr. (Mineral)	<2.0 sp.gr. (Organic)
PAHs, µg/kg (Concluded0						
CHRYSE	192	247.7	152	850	66.2	992
BAANTHR	139	180.3	97.95	756	29.9	720
BBFLANT	127	173.3	112.5	565	53.4	762
BKFLANT	101	139.0	76.35	463.5	32.4	521
BAPYRE	149	193.3	108.45	769	35.6	747
I123PYR	122	164.3	99.45	540	39.4	637
DBAHANT	26.6	29.2	19.5	114	5.1	105
B-GHI-PY	149	179.3	112.5	614	48.3	678
2MeNAPH	130	157.7	98.95	426	31.8	574

Table 2 Particle Size Analysis of Green Bay Cell 5 Samples				
Volume, %	Bulk 45	Bulk 123	Sand	Fines
< 5 µm	27.1	24.3	5.88	30.5
< 75 µm	93.3	90.8	43.5	99.98
> 75 µm	6.70	9.2	56.5	0.02

removed. The procedure was repeated several times to ensure a reasonably clean separation, as determined by visual inspection.

The four fractionated samples (fines, sand, mineral, organic) were analyzed for PAHs, PCBs, metals, and indicator analytes. Density (mineral and organic) samples were also analyzed for total volatile solids (TVS) to assess efficiency of separation, but this parameter was ultimately not useful, being less than the detection limit (DL) for both fractions. Results are summarized in Table 1.

The contaminant concentrations among the sand and fine fractions display trends opposite of that expected. The sand fraction is typically assumed to be relatively clean, and the fines to contain higher contaminant levels due to higher surface area and clay chemistry. Here, however, PAH and PCB concentrations in the sand exceed that of the fines, many by an order of magnitude. Most metal concentrations (arsenic, cadmium, chromium, copper, lead, mercury, selenium, manganese, molybdenum) were also higher in the sand than in the fines, but within the same order of magnitude. During wet sieving, an oily film was noted to settle on top of the sieved sand. It was thought that much of the contamination could be associated with this film, or with a coarse organic fraction. To evaluate this, the correlation coefficient was calculated for oil and grease and TOC concentrations versus PAH, PCB and metal concentrations. The resulting values indicate a strong linear relationship between oil and grease and PAH

concentrations, and a moderate relationship between oil and grease and PCBs and metals concentrations (Figures 2, 3, and 4), with the exception of selenium and manganese, which evidenced a strong linear relationship. PAH versus PCB concentrations were quite strongly linear. The correlation coefficient for TOC versus PAH, PCBs, and metals indicates a moderate to weak linear relationship. Note that this does not imply that there is not a strong relationship, simply the absence of a strong linear relationship.

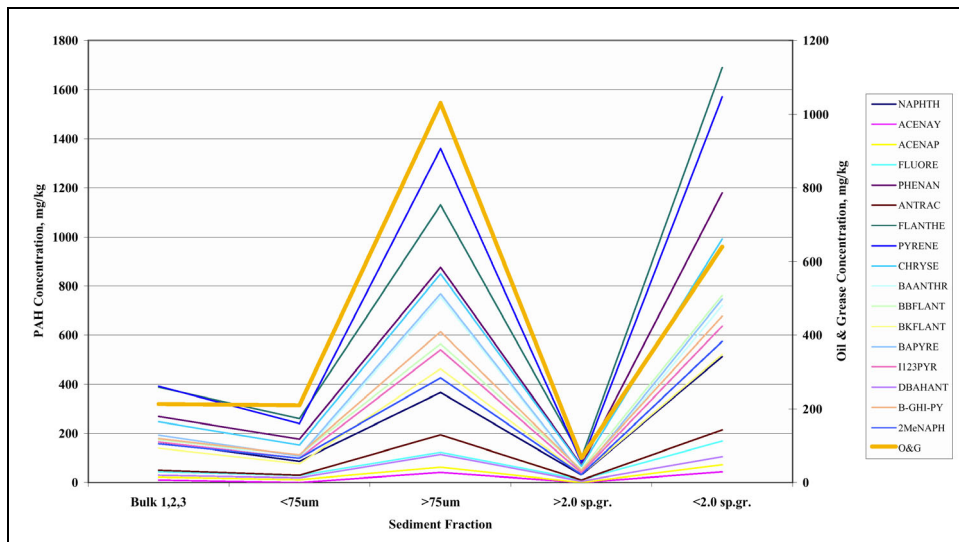


Figure 2. PAH versus oil and grease concentrations, Cell 5 material

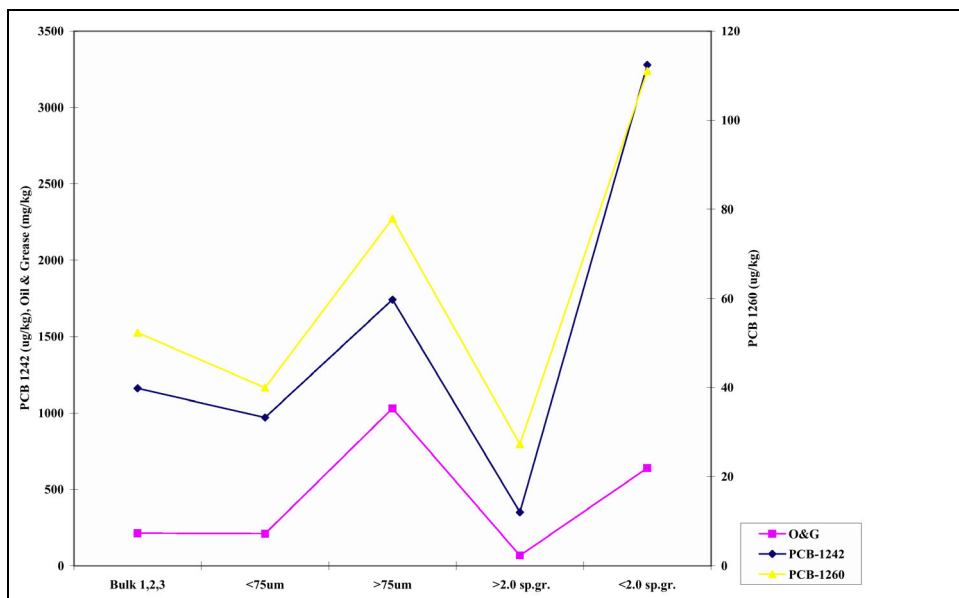


Figure 3. PCB versus oil and grease concentrations, Cell 5 material

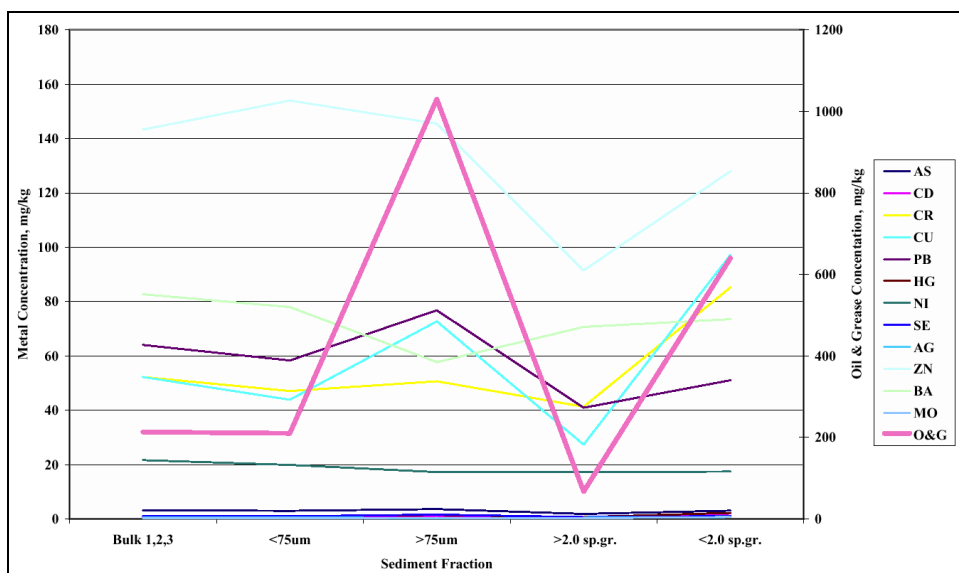


Figure 4. Metals versus oil and grease concentrations, Cell 5 material

The contaminant differences between the mineral and organic fractions were as expected, revealing order of magnitude greater PAH and PCB concentrations in the organic fraction. Metals were not as clearly distributed. Although higher concentrations of metals were present in the organic fraction, they were at the same order of magnitude as in the mineral fraction. Iron was an exception to this, being an order of magnitude higher in the mineral fraction than in the organic fraction. On average, metal concentrations were twice as high in the organic as in the mineral fraction (excluding iron), and PAHs and PCBs in the organic fraction averaged 18 and 7 times, respectively, that of the mineral fraction.

Cell 4 characterization and bench-scale testing

Particle size analysis. Samples C4P2, C4P4, and C4P6 were analyzed on the Coulter particle size analyzer to verify that a significant sand fraction was present. Percent greater than 75 µm was approximately 40, 54, and 62 percent, respectively (by volume). Coulter analysis of the homogenized C4B samples indicated approximately 32.8 percent > 75 µm. The samples taken from along the inner radius C4S1-3 were also analyzed on the Coulter, with the volume percent less than 75 µm ranging from 96.5 to 99.6 percent, indicating that particular area would not be a good candidate for sand recovery. Output from the Coulter for the C4B samples is presented in Appendix A. Particle size analysis results are given in Table 3.

Table 3
Particle Size Analysis of Green Bay Cell 4 Samples

Volume, %	C4P2	C4P4	C4P6	C4B
< 5 µm	15	13	10	20
< 75 µm	60	46	38	67.2
> 75 µm	40	54	62	32.8

Bulk sediment chemistry. The C4B1, C4B2, and C4B3 samples were homogenized, and two samples were then taken for bulk chemical analysis. The average concentrations for the composite are reported in Table 4. The analysis revealed the existence of some PAHs and metals, and concentrations of 3,755 and 39 µg/kg, respectively, for PCB 1242 and PCB 1260.

Water content analysis. The water content of the C4P2, C4P4, and C4P6 samples was measured in duplicate by oven drying. The water contents averaged 59, 36, and 27 percent, respectively, for the three samples.

Fractionation testing. Although a full size and density separation was desired on the Cell 4 material, due to time constraints the most important separation to evaluate initially was the sand/silt separation at 75 µm. This separation was achieved by wet sieving a subsample of the material through a 75-µm sieve. The sand fraction was washed off the sieve, and the wash water was then drained off the sand. The sand sample was analyzed with the Coulter LS100 Particle Size Analyzer and was found to contain only 5.5 percent <75 µm and 1.1 percent < 5 µm by volume, indicating a relatively clean separation. Half the fines slurry was flocculated using Hychem, Inc., CP626 cationic polymer. Two (duplicate) samples from both the dewatered sand and flocculated fines (silt/clay) samples were analyzed for chemical constituents as summarized in Table 4. The other half of the fines fraction was reserved for further fractionation testing. The unflocculated silt and clay fractions were separated using a 50-mm (2-in.) hydrocyclone and the fractions analyzed for PCBs and indicator analytes. The silt and clay fractions were analyzed on the Coulter to evaluate effectiveness of the hydrocyclone separation. Approximately 5.7 percent of the silt fraction was greater than 75 µm, and approximately 14 percent less than 3 µm. The presence of particles greater than 75 µm in the silt fraction can be attributed to oblong particles that pass through the #200 sieve, and agglomeration of particles, which the Coulter may read as a single, larger particle. The clay fraction was less clean, with a mean particle size of 15.24 µm, and a median particle size of 6.39 µm. Approximately 90 percent of the clay fraction was less than 36 µm, and 50 percent less than 6.4 µm. Only 25 percent was less than 2.7 µm. The silt and clay fractions were also subsequently analyzed for chemical constituents (Table 4).

Unlike the Cell 5 analysis, the Cell 4 data follow the expected trends, with greater concentrations of the contaminants associated with the fines than with the sand. Concentrations of metals in the silt/clay fraction are almost all one to two orders of magnitude higher than in the sand. PCBs are an order of magnitude higher in the silt/clay fraction than in the sand. Differences in concentrations

Table 4
Chemical Analysis of Cell 4 Bulk and Fractionated Sediment
Samples

Analyte	Size Fractions				Bulk Sediment Avg. Conc.
	Sand (>75 μm) Avg. Conc.	Silt/Clay (<75 μm) Avg. Conc.	Silt (≈5 μm - 75 μm) Conc.	Clay (<5 μm) Avg. Conc.	
Indicator Analytes					
TOC, mg/kg	1435	21100	9180	78900	27300
O&G, mg/kg	43	475	110	320	220
TRPH, mg/kg	10.5 J ¹	270	46	180	185
TVS, %					<4%
Metals, mg/kg					
AS	0.45	5.05	2	6.85	2.2
CD	0.04	1.355	0.32	2.29	0.6045
CR	3.05	79.95	15.1	134	29.8
CU	10.05	75.25	21.2	113	32.8
PB	5.6	101.2	242	193.5	43.7
HG	0.02	3.45	0.363	2.85	1.085
NI	2.2	27.1	7	36.9	10.8
SE	<0.200	1.1	0.3	1.3	0.4995
AG	0.4	0.8995	0.4	1.6	0.4995
ZN	13.5	148.555	320	681	76.1
BA	4.6	104.5	27.5	183	42.85
FE			10500	30600	3822.4
MN	44.25	325.5	174	321	140
MO	<0.100	0.849	0.5	1	0.3495
PCBs, μg/kg					
PCB-1016	<10.3	<38.9	<11.2	<40.5	<12.7
PCB-1221	<10.3	<38.9	<11.2	<40.5	<12.7
PCB-1232	<10.3	<38.9	<11.2	<40.5	<12.7
PCB-1242	444	5927.5	1950	7595	3754.5
PCB-1248	<10.3	<38.9	<11.2	<40.5	<12.7
PCB-1254	<10.3	<38.9	<11.2	<40.5	<12.7
PCB-1260	21.4	317.5	18.2	238	39
PAHs, μg/kg					
NAPHTH	* ²	*	*	*	123.5
ACENAY	*	*	*	*	14.2
ACENAP	*	*	*	*	41.25
FLUORE	*	*	*	*	53.4
(Continued)					
¹ Indicates estimated concentration for analyte that is above MDL but below LRL. ² * Due to budgetary constraints, fractionation testing was limited to PCBs and metals, which were thought to be of greatest concern. There was insufficient silt sample for duplicate analysis; results given are therefore based on analysis of only one sample.					

Table 4 (Concluded)					
Analyte	Size Fractions				Bulk Sediment Avg. Conc.
	Sand (>75 µm) Avg. Conc.	Silt/Clay (<75 µm) Avg. Conc.	Silt (≈5 µm - 75 µm) Conc.	Clay (<5 µm) Avg. Conc.	
PAHs, µg/kg (Concluded)					
PHENAN	*	*	*	*	228.5
ANTRAC	*	*	*	*	46.55
FLANTHE	*	*	*	*	217
PYRENE	*	*	*	*	263
CHRYSE	*	*	*	*	148
BAANTHR	*	*	*	*	125
BBFLANT	*	*	*	*	85.1
BKFLANT	*	*	*	*	73.4
BAPYRE	*	*	*	*	117.5
I123PYR	*	*	*	*	82
DBAHANT	*	*	*	*	15.45
B-GHI-PY	*	*	*	*	95.55
2MeNAPH	*	*	*	*	145.5

between the silt fraction and the clay fraction are not as consistent, but concentrations in the clay fraction are higher for all analytes tested. TOC in the clay fraction is approximately 8.5 times that in the silt. Oil and grease, TRPH, PCB-1242, and PCB-1260 in the clay fraction are 2.9, 3.9, 3.9 and 26 times greater, respectively, than in the silt. Based on correlation coefficients, there is a strong positive correlation between metals concentrations and oil and grease and TRPH concentrations (Figure 5). Metals are moderately correlated to TOC concentration. There is also a moderate to strong positive correlation between PCBs, TRPH, and oil and grease (Figure 6) and PCBs and TOC (Figure 7).

Test Candidate Unit

A 1-day field demonstration was scheduled for 10 August 2000 at the Bayport CDF, Green Bay, WI. Equipment arrived onsite on Monday, 7 August 2000. Three full days were required to set up the system. This was not sufficient time to debug and troubleshoot, however; a cold start was made on the day of the demonstration. An electrical problem, unrelated to the separation unit, caused a minor delay. The system ran intermittently after that, with additional delays for clearing the jet pump and replacing or tightening clamps on water supply or slurry delivery hoses. The system was operated for approximately 5 hours, at which time sufficient material had been processed to assess the separation efficiency, and overall system characteristics and trouble points had been identified.

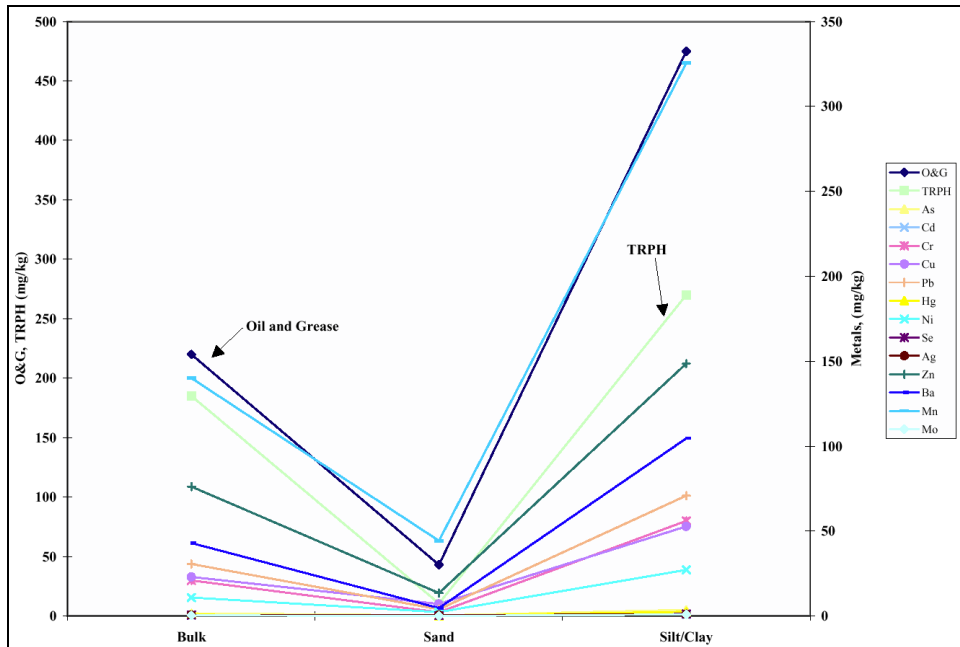


Figure 5. Metals versus TRPH and oil and grease concentrations, Cell 4 material

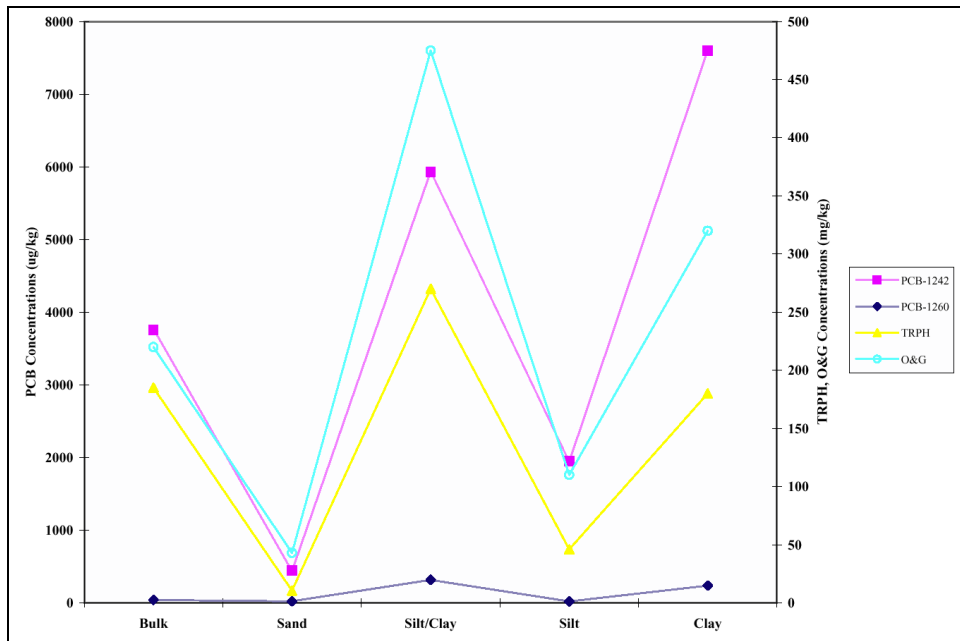


Figure 6. PCB versus TRPH and oil and grease concentrations, Cell 4 material

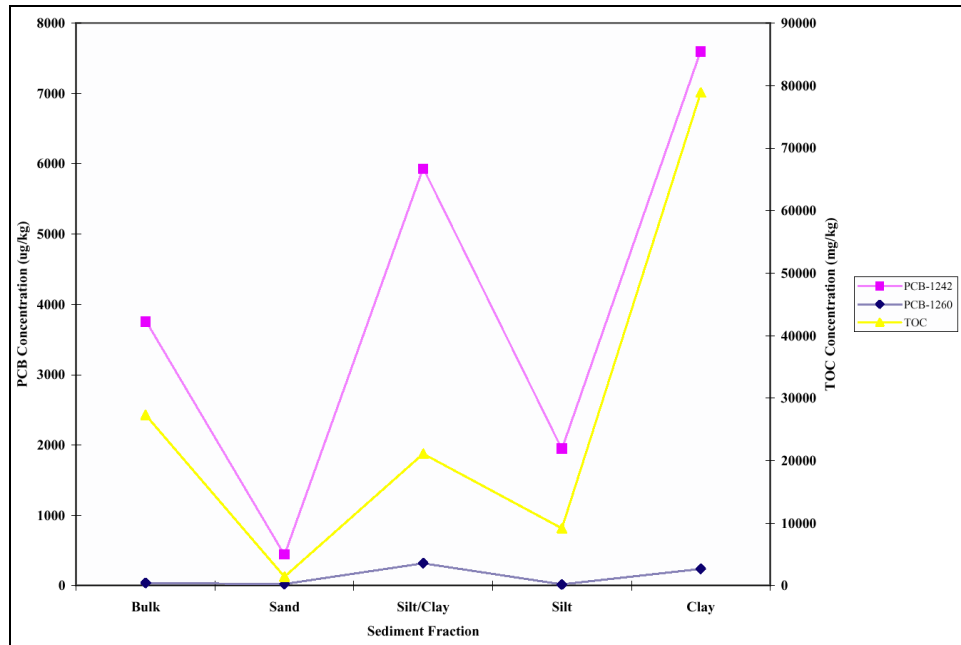


Figure 7. PCB versus TOC concentrations, Cell 4 material

Site logistics

The Cell 4 staging area was much farther from the freshwater source than the staging area originally selected for processing the Cell 5 material. Additionally, the Cell 4 staging area was much smaller than the original site, making onsite stockpiling of mechanically excavated material infeasible. It was therefore decided to excavate only a small amount of Cell 4 material for screening testing, and to excavate feed for the hydrocyclone using a modified jet pump. This was a particularly attractive alternative because of the potential benefits of small-scale hydraulic excavation or mechanical excavation (accessibility in unstable material, maneuverability around debris), and the added information that would result from a single effort. The principal disadvantage of this approach was that the process water had to be pumped approximately 300 m (1,000 ft) to the excavation point.

Equipment

Because of the distance between the staging area and the freshwater source, a larger water pump, transfer hoses, and generator were required than for the original staging area. Water pump, generator, and flexible hoses with quick couplings were available and obtained on a short-term rental basis. The MetPro mobile unit was as previously described in the section “Project Activities,” consisting of a trailer, slurry pump, sump, and 0.6-m (24-in.) MDS (Figure 8). The eductor pump was fitted with an exterior ring, providing water jets for horizontal excavation (Figure 9). A powerscreen was also rented for screening the mechanically excavated material (Figures 10 and 11). The unit consisted of a grizzly, hopper with shredder, conveyer and shaking screen, equipped with a



Figure 8. MetPro mobile MDS unit



Figure 9. Eductor pump



Figure 10. Powerscreen



Figure 11. Screen undersize

harp screen to enhance processing of clayey material and reduce plugging due to wet material.

Field operation

The generator and water pump performed well, and similar equipment should be readily available at most locations. The flexible hoses were not designed to operate at the optimum delivery pressure, however. Several failures of the coupling/hose attachment occurred, but once this problem was addressed, the hoses performed reasonably well with the pump discharge throttled back somewhat. Based on this experience, however, it is thought that suitable hoses should be purchased for future operations. The eductor pump, although somewhat crudely assembled for the purposes of demonstration, performed fairly effectively. Although the site was heavily vegetated, the vegetation did not prevent excavation of the sediment in situ. Some variability was noted in the feed percent solids. Although this does not appear to have adversely affected the separation achieved, the result is an inefficient utilization of available water supply; and under different circumstances, separation efficiency could be affected. The pump did plug with large woody debris on two or three occasions. This could be prevented with a coarse protective screen at the pump intake. Additionally, no water jets faced in the downward direction. Excavation was impeded when a large rock was encountered underneath the pump. The sump and cyclone performed as expected. There was one failure of a band coupling, and this is potentially a weak point in the system. This connection could be made more secure with permanent piping, rather than the flexible hoses used to deliver the slurry pump discharge to the hydrocyclone inlet.

The Powerscreen performed relatively well considering that the material being fed was much wetter than the equipment is designed to handle. Problems were encountered, however, in feeding the screen. Clay clods rolled off the grizzly, reporting with the oversize. Attempts to push this material through the grizzly were only partially successful and time-consuming. The shaking screen passed the moist, fine materials without any evident problem, but blinding did occur on the coarse upper screen, where 0.1- to 0.15-m (4- to 6-in.) chunks of asphalt collected and had to be manually scraped off. Although the results indicate that the Powerscreen may be useful to prepare a small amount of material for process testing, feeding a full-scale hydrocyclone operation in this manner is probably infeasible.

Visitors

The demonstration was scheduled for 10 August 2000. Notice of the demonstration was posted on the Detroit District Web site, and notification sent directly to regulators and environmental organizations in the region. Approximately 30 people attended the demonstration. Results of the demonstration were also presented to the Great Lakes Commission in October 2000.

Process sampling

Three 19-L (5-gal) samples were taken simultaneously from the feed slurry and overflow, and three 4-L (1-gal) samples were taken from the underflow at five different intervals during processing (1400, 1505, 1525, 1625, and 1715 hours). Samples were captured and transported in new HDPE buckets. Of these, two from each sampling event were designated for particle size distribution and contaminant concentration analysis. The remainder of the samples were designated for particle size distribution only. The field sampling contractor was responsible for obtaining process samples and packaging and shipping them to ERDC. The overflow was sampled using a J-shaped diverter of polyvinyl chloride (PVC) pipe, which was passed through the overflow stream vertically to obtain a representative sample. The feed stream was sampled from a port welded onto the outlet from the slurry pump, where the slurry was expected to be turbulent and therefore well mixed. The line was purged for a few seconds prior to taking each sample. Underflow samples were captured directly from the cyclone underflow discharge. The volume of underflow samples was reduced from that specified in the Quality Assurance Project Plan¹ due to the high solids content of the underflow; 4-L (1-gal) samples were sufficient for all proposed analysis. Samples designated for chemical analysis were placed in a cooler and packed in ice for shipment. Samples designated for particle size analysis only were not refrigerated. Chain-of-custody forms were completed.

A single 19-L (5-gal) sample of the process supply water was also taken to establish baseline concentrations. It was initially proposed to sample effluent at the pond discharge during and after processing to verify that no permit parameters were violated during processing. However, water levels in the pond were low enough that there was no discharge from the pond at the time of processing, and the process overflow was passed through a sand drainage bed prior to being returned to the pond, reducing suspended solids. Dissolved contaminant levels were therefore measured in the process overflow and compared to Freshwater Acute Federal water quality criteria (USEPA 1999a). Of the parameters measured in the overflow having criteria, none exceeded acute water quality criteria.

Upon arrival at ERDC, the samples were refrigerated, and samples designated for chemical analysis were quickly processed to meet specified holding times. The feed and overflow slurry samples designated for chemical analysis (two field duplicates per stream per sampling time) were sampled while being stirred to obtain representative samples of the slurry. They were then centrifuged, and both solids and supernatant collected for chemical analysis. Percent solids of the underflow samples was much higher, and subsamples were taken directly from the buckets for chemical and particle size analysis without centrifuging. Subsamples of all process solids were also taken for water content and particle size analysis. Due to the difficulty involved in obtaining a representative subsample from a slurry, slurry samples were allowed to settle for

¹ The QAPP describes the technical quality assurance/quality control for specific data collection, project objectives and organization, sampling design, analytical methods, data quality indicators, and data review (USEPA 1997, 1998).

an extended period of time. The supernatant was then poured off, the supernatant and remaining wet solids weighed, and then water content of the wet solids determined by oven drying. In this manner, the initial solids content of the slurry could be calculated. The settled solids were analyzed on the Coulter particle size analyzer for particle size distribution.

Results

Particle size analysis

Results of the particle size data for samples taken from the feed and overflow samples while stirring versus samples taken from the settled slurries were different. Because the settled slurries were still relatively liquid but at a higher percent solids, it was possible to mix them thoroughly and avoid rapid settling of coarse particles, thus producing more representative samples of all size ranges in the solids. The feed and overflow particle size distributions reported in Table 5 are for the subsamples taken from the settled samples. The underflow contained less than 8 percent fines by volume. Depending upon the specific gravity of the particles, this can be converted to percent fines by weight. Because the Coulter counter measures particle volume only (void volume is not measured), percent sand by volume can be taken to be approximately equivalent to percent sand by mass, assuming the same specific gravity for all particles in the material.

Percent moisture/percent solids

Results of percent moisture ($W_{\text{water}}/W_{\text{total}}$) and percent solids ($W_{\text{solids}}/W_{\text{total}}$) for the process streams are summarized in Table 6. The percent solids of the feed varied from 1.8 to 5.9 percent by weight. This is a relatively dilute feed stream. Although the separation efficiency is enhanced by a dilute feed stream, operational efficiency overall is lower than optimum. Percent solids of the underflow was quite high, ranging from 75.2 to 80.3 percent, reflecting the coarse nature of the underflow. Mean percent moisture of the underflow was approximately 22 percent, compared with approximately 98 percent for the feed and overflow process streams.

Chemical analysis

The results of the chemical analysis for each replicate at each sampling time were averaged for the three process streams, and are summarized in Table 7. For comparison, results of the bench-scale characterization for these fractions are given in parentheses. Qualitatively, the bench-scale testing appears to have given a relatively representative indication of the contaminant levels in the field-scale process streams. To evaluate whether the concentrations in the process and characterization fractions are essentially equivalent, the data were evaluated. Contaminants included arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, barium, PCB 1242, PCB 1260, TOC, oil and grease, and TRPH. One-half the detection limit was used for contaminant concentrations less than the detection limit. The Statistical Analysis System (SAS) release 8.1 was used to perform the data analysis (SAS Institute, Inc., 1989a, 1989b). The statistical procedures and assumptions are more fully

Table 5 Particle Size Analysis of Streams from the Mobile Hydrocyclone Demonstration			
Sample	Sand Volume % > 76.42 µm	Silt Volume % 5-76.42 µm	Clay Volume % < 5 µm
Feed			
F1400	26.2	55.6	18.2
F1505	23.4	59.1	17.5
F1525	33.5	49.6	16.9
F1625	26.9	55.2	17.9
F1715	30.4	52.5	17.1
Average	28.1	54.4	17.5
Overflow			
O1400	15.7	61.8	22.5
O1505	11.5	68.7	19.8
O1525	22.5	57.5	20
O1625	19.7	63.8	16.5
O1715	23.9	55.9	20.2
Average	18.7	61.5	19.8
Underflow			
U1400	91.36	7.02	1.62
U1505	92.12	6.56	1.32
U1525	90.23	8.05	1.72
U1625	92.52	6.08	1.4
U1715	94.31	4.43	1.26
Average	92.11	6.43	1.46

described in Appendix B. On the basis of the statistical analysis, the following generalizations regarding concentrations in the process streams and bench-scale samples, respectively, can be made:

- a. Underflow = sand
- b. Overflow = silt/clay for zinc, oil and grease, and TRPH
- c. Overflow < silt/clay for all other analytes except TOC
- d. Overflow > silt/clay for TOC
- e. Feed = bulk for all analytes except PCB 1260
- f. Feed > bulk for PCB 1260

The statistical power of the analysis for most analytes was less than 75. The power was greater than 75 for comparison of nickel in underflow and sand, and for PCB 1242 in feed and bulk for the one-tailed tests. Power was also greater than 75 for comparison of nickel and PCB 1260 in underflow and sand and for comparison of arsenic, chromium, nickel, barium, PCB 1242, PCB 1260, oil and grease, and TRPH in feed and bulk for the two-tailed tests.

Table 6		
Percent Moisture and Percent Solids of Process Streams		
Sample	Percent Moisture	Percent Solids
Feed		
F1400	94.08	5.92
F1505	98.53	1.47
F1525	98.18	1.82
F1625	98.53	1.47
F1715	98.19	1.81
Average	97.5	2.5
Overflow		
O1400	96.94	3.06
O1505	98.80	1.20
O1525	98.88	1.12
O1625	99.09	0.91
O1715	98.66	1.34
Average	98.5	1.5
Underflow		
U1400-3	19.84	80.16
U1505-3	24.77	75.23
U1525-3	24.59	75.41
U1625-3	19.69	80.31
U1715-3	20.62	79.38
Average	21.9	78.1

From a practical standpoint, it appears that the bench-scale characterization will give predicted concentrations at least within the same order of magnitude as the field process. In some cases, it is quite representative of the contaminant distribution that will be achieved at full scale for this process. From a processing objective, the statistical analysis suggests that the quality of the underflow was higher than the quality of the sand produced in the bench-scale testing, which is a favorable outcome. In some cases this may be attributable to lower concentrations in the process feed, but for other constituents this is not the case. SAS output is presented in Appendix B.

With regard to the processing objectives, the contaminant concentrations in the underflow ranged from 2 percent to 39 percent of that in the feed. PCBs were reduced 95 percent (Arochlor 1242) and 92 percent (Arochlor 1260), from 2,714 µg/kg to 144 µg/kg, and from 145 µg/kg to 11.9 µg/kg, respectively. TOC, oil and grease, and TRPH were significantly reduced in the process underflow. Most metals concentrations were reduced by an order of magnitude in the underflow, selenium, silver, and molybdenum being the exceptions. Selenium was reduced by a factor of 2.6, silver by a factor of 2.6, and molybdenum by a factor of 7.8.

Data validation sheets are included in Appendix C. Data were evaluated on the basis of representativeness, comparability, and completeness.

Table 7
Process Streams Chemical Analysis

Analyte	Process Solids			Process Water			
	Feed	Overflow	Underflow	Supply	Feed Supernatant	Overflow Supernatant	Underflow Supernatant
Indicator Analytes							
TOC (mg/kg)	26,500 (27300)	46,480 (21100)	1019 (1435)				
TVS (%)	<4 (<4)	<4	<4				
O&G (mg/kg)	332 (220)	435 (475)	16 (43)				
TRPH (mg/kg)	259 (185)	338 (270)	<42.2 (10.5J)				
PCBs							
Arochlor 1242 (ppb)	2713.8 (3754.5)	4037.9 (5927.5)	144.0 (444)	<0.24	0.27	0.21	N/A
Arochlor 1260 (ppb)	145.0 (39)	109.9 (317.5)	11.9 (21.4)	<0.24	<0.24	<0.26	N/A
Metals							
As (ppm)	2.805 (2.2)	3.4 (5.05)	0.4883 (0.45)	0.005	0.0039	0.0041	N/A
Cd (ppm)	0.5809 (0.6045)	0.82 (1.355)	0.05908 (0.04)	<0.0002	<0.0002	<0.0002	N/A
Cr (ppm)	38.44 (29.8)	48.8 (79.95)	2.896 (3.05)	0.006	0.0046	0.0055	N/A
Cu (ppm)	37.81 (32.8)	50 (75.25)	3.386 (10.05)	0.003	0.0025	0.0021	N/A
Pb (ppm)	41.69 (43.7)	59.6 (101.2)	2.937 (5.6)	<0.001	<0.001	<0.001	N/A
Hg (ppm)	0.8834 (1.085)	1.3 (3.45)	<0.040 (0.02)	<0.00020	<0.00020	<0.00020	N/A
Ni (ppm)	15.718 (10.8)	19.0 (27.1)	2.578 (2.2)	0.014	0.0096	0.0093	N/A
Se (ppm)	0.5116 (0.4995)	0.65 (1.1)	0.2 (<0.200)	0.002	0.002	0.002	N/A
Ag (ppm)	0.3447 (0.4995)	0.53 (0.8995)	0.1333 (0.4)	<0.001	<0.001	<0.001	N/A
Zn (ppm)	81.4 (76.1)	116.9 (148.55)	5.431 (13.5)	0.046	0.0428	0.0396	N/A
Ba (ppm)	61.12 (42.85)	79.4 (104.5)	5.5052 (4.6)	0.108	0.1828	0.1769	N/A
Fe (ppm)	14251 (3822.4)	18010	1879	0.08	0.1304	0.0703	N/A
Mg (ppm)	15200	17740	N/A	75.6	76.85	78.19	N/A
Mn (ppm)	275.2 (140)	366.2 (325.5)	47.71 (44.25)	3.03	1.609	1.60	N/A
Mo (ppm)	0.7798 (0.3495)	0.40 (0.849)	0.1 (<0.100)	<0.001	0.003	0.0033	N/A
Note: Values in parentheses are for the bulk, fines, and sand fractions from bench-scale characterization.							

Representativeness and comparability are qualitative criteria, and completeness is a quantitative criterion. Representativeness is a key concern during field sampling activities, and expresses the degree to which sample data accurately represent the site, specific matrices, and parameter variations at a sampling point. Representativeness is dependent on the proper design of the sampling program, proper selection of laboratory methods for the matrix under scrutiny, and stability of the laboratory methods. The representativeness criterion is best satisfied by making certain that the sampling locations, procedures, and quantities are selected based on the project objectives, and that suitable analytical procedures are utilized, preservation requirements are met, and holding times are not exceeded in the laboratory.

Comparability expresses the confidence with which one data set can be compared with another. The analysis of certified reference materials is used to provide data on comparability. The data obtained within this project will be comparable because all the standard operating procedures used in the determinations are based on methods with proven protocols and proven internal and external audit compliance relative to performance testing on certified reference material soils. All analyses of a single type will be conducted at the same laboratory. Completeness of the deliverable is measured for each set of data received by dividing the number of valid (passing quality assurance/quality control (QA/QC) requirements) measurements actually obtained by the number of measurements made. Each of the analytical parameters is evaluated separately in terms of precision, accuracy, and data acceptability. Precision pertains to the repeatability of the test, and is determined using a relative percent difference for duplicate samples and, for three or more replicate analysis, as a relative standard deviation or coefficient of variation. Most literature suggests that the goal for precision among field duplicates should be within 30 percent expressed as a relative percentage difference. Accuracy pertains to the closeness to the true value, and is evaluated using matrix spike recoveries expressed as a percent recovery. Completeness is then calculated on the basis of the number of samples meeting the established QA/QC requirements, as previously described. Acceptable completeness for a data set has been set at 90 percent meeting QA/QC requirements.

Completeness of the data was above 90 percent for all three data sets (Cells 4 and 5 characterization and field demonstration data). Some data were qualified due to minor problems. Corrective actions and data qualifications are detailed in the individual data validation sheets attached in Appendix C.

Equipment Acquisition

On the basis of the performance of the 0.6-m (24-in.) MDS, a 0.3-m (12-in.) MDS was purchased for laboratory and field-scale feasibility testing. The capacity of the 0.3-m (12-in.) MDS is not sufficient for large-scale processing, but is better suited for feasibility testing because the volumes of process water required are more manageable, and the supporting equipment is correspondingly smaller and more widely available. A vibrating wet screen was also purchased for screening out oversize prior to the sump of the hydrocyclone, and fitted with 13-mm (1/2-in.) and 6-mm (1/4-in.) screens. Either dry or slurried material can

be fed onto the screen. The screen was ordered with excess capacity so that it could also be used with full-scale processing operations.

3 Conclusions

The principal objectives of the project were to evaluate the efficiency of the 0.6-m (24-in.) MDS in producing a sand fraction with fines and PCB concentrations sufficiently reduced to permit beneficial use, and to evaluate the correspondence of contaminant levels predicted by bench-scale testing versus field-scale operation. The target product (sand) specifications were less than 10 percent fines by mass and PCB concentrations less than 1 mg/kg. The underflow fraction produced averaged over 92 percent sand, as measured by a Coulter counter, and 0.144 mg/kg PCB 1242 and 0.0119 mg/kg PCB 1260. Based on statistical analysis of the results, the contaminant concentrations predicted for the sand fraction by the bench-scale testing were essentially equivalent to that achieved in the field operation. This is particularly significant since the process feed concentration of PCB 1260 was statistically greater than the bulk sediment concentration for the bench-scale testing. This indicates a somewhat higher efficiency of PCB removal for the MDS compared with that of wet sieving of the material. This may be attributable to the presence of coarse organic particles, which would report with the sand on a wet sieve, but would report with the overflow of a hydrocyclone. This is supported by the higher TOC concentration measured in the process overflow compared with that of the silt/clay fraction of the bulk sediment used in bench-scale testing. Distribution of metals was somewhat more variable than for PCBs, but metals were reduced by an order of magnitude in the sand fraction, with the exception of selenium, silver, and molybdenum. Selenium, silver, and molybdenum were reduced by factors of 2.6 to 7.8. In the absence of specific criteria establishing acceptable levels of metal constituents, partitioning theory could be used to evaluate the magnitude of potential release of metals in the beneficial use environment. Predicted releases could then be compared with applicable water quality criteria and necessary dilutions estimated.

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Appendix A

Coulter Counter Particle Size Analysis, Cell 4 Material



LS Particle Size Analyzer

Page 1

22 May 2002 11:10

US Waterways Experiment Station

File name: C4b.\$av
Operator: Susan Bailey
Optical model: Fraunhofer
LS 100Q Fluid Module

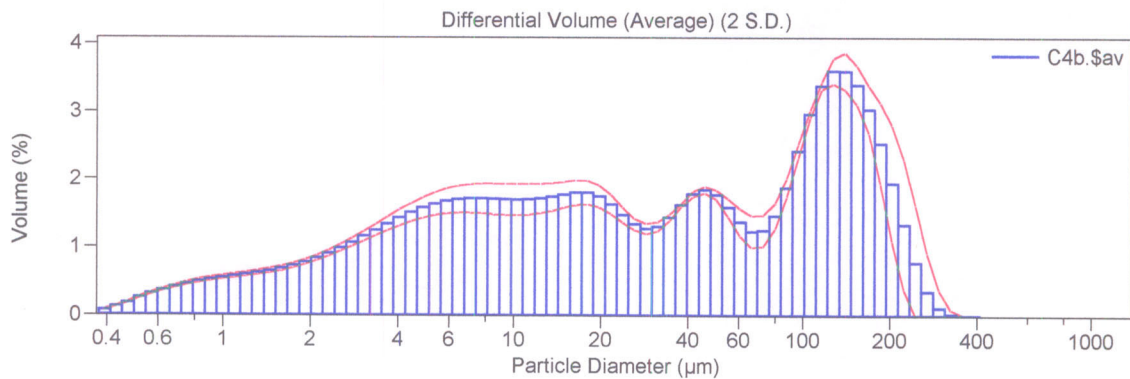
Run length: 60 seconds

Fluid: Water
Software: 3.01 2.11

Firmware: 2.02 2.02

Average of 3 Files:

C4b1.\$av C4b2.\$av C4b3.\$av



Volume Statistics (Arithmetic)

C4b.\$av

Calculations from 0.375 μm to 948.2 μm

Volume: 100%
Mean: 59.32 μm S.D.: 65.88 μm
Median: 25.95 μm C.V.: 111%
D(3,2): 6.291 μm
Mode: 127.6 μm

% <	10	25	50	75	90
μm	2.371	6.565	25.95	107.9	161.7



LS Particle Size Analyzer

Page 2

22 May 2002 11:13

US Waterways Experiment Station

C4b.\$av

Channel Number	Particle Diameter (Lower) µm	Cum. < Volume %	Channel Number	Particle Diameter (Lower) µm	Cum. < Volume %
1	0.375	0	51	39.77	56.4
2	0.412	0.070	52	43.66	58.2
3	0.452	0.19	53	47.93	60.0
4	0.496	0.38	54	52.63	61.8
5	0.545	0.64	55	57.77	63.4
6	0.598	0.96	56	63.41	64.7
7	0.657	1.33	57	69.62	66.0
8	0.721	1.75	58	76.43	67.2
9	0.791	2.22	59	83.90	68.7
10	0.869	2.72	60	92.09	70.6
11	0.953	3.25	61	101.1	73.0
12	1.047	3.81	62	111.0	75.9
13	1.149	4.38	63	121.8	79.3
14	1.261	4.98	64	133.7	82.9
15	1.385	5.61	65	146.8	86.5
16	1.520	6.27	66	161.2	89.9
17	1.669	6.95	67	176.8	92.9
18	1.832	7.69	68	194.2	95.5
19	2.010	8.47	69	213.2	97.4
20	2.207	9.31	70	234.1	98.7
21	2.423	10.2	71	256.8	99.5
22	2.660	11.2	72	282.1	99.9
23	2.920	12.3	73	309.6	99.97
24	3.206	13.4	74	339.8	99.997
25	3.519	14.7	75	373.1	100
26	3.862	16.0	76	409.6	100
27	4.241	17.5	77	449.7	100
28	4.656	19.0	78	493.6	100
29	5.111	20.5	79	541.9	100
30	5.611	22.2	80	594.9	100
31	6.158	23.9	81	653.0	100
32	6.761	25.6	82	716.9	100
33	7.421	27.3	83	786.9	100
34	8.147	29.0	84	863.9	100
35	8.944	30.7		948.2	100
36	9.819	32.4			
37	10.78	34.1			
38	11.83	35.8			
39	12.99	37.5			
40	14.26	39.2			
41	15.65	41.0			
42	17.18	42.8			
43	18.86	44.6			
44	20.70	46.3			
45	22.73	48.0			
46	24.95	49.4			
47	27.38	50.8			
48	30.07	52.1			
49	33.00	53.4			
50	36.24	54.8			



LS Particle Size Analyzer

Page 1
22 May 2002 11:13

US Waterways Experiment Station

File name: C4b.\$av
Operator: Susan Bailey
Optical model: Fraunhofer
LS 100Q Fluid Module

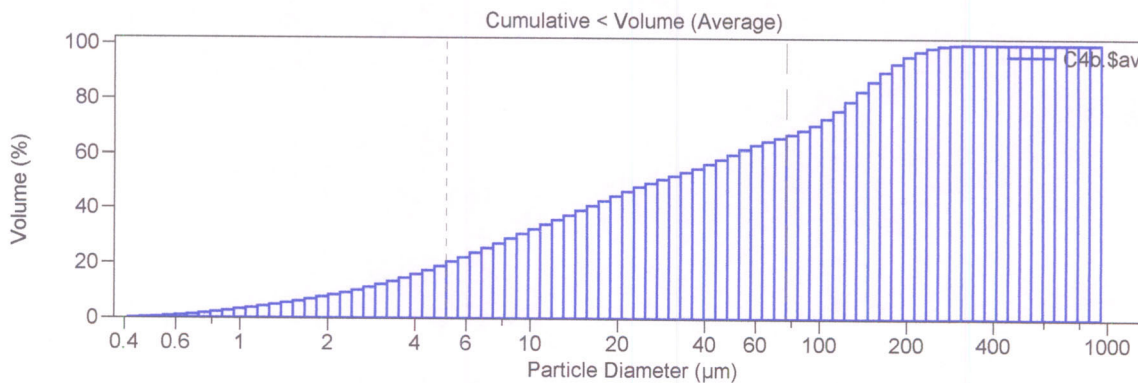
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Fluid: Water
Software: 3.01 2.11

Firmware: 2.02 2.02

Average of 3 Files:

C4b1.\$av C4b2.\$av C4b3.\$av



LC= 20.54% < 5.111 μm UC= 67.22% < 76.43 μm {46.68%}

Volume Statistics (Arithmetic) C4b.\$av

Calculations from 5.111 μm to 76.43 μm

Volume: 46.7%
Mean: 25.13 μm S.D.: 18.77 μm
Median: 18.19 μm C.V.: 74.7%
D(3,2): 14.33 μm
Mode: 45.75 μm

% <	10	25	50	75	90
μm	6.639	9.729	18.19	37.89	55.08



LS Particle Size Analyzer

Page 2

22 May 2002 11:05

US Waterways Experiment Station

C4b.\$av

Channel Number	Particle Diameter (Lower) µm	Cum. < Volume %	Channel Number	Particle Diameter (Lower) µm	Cum. < Volume %
1	0.375	0	51	39.77	56.4
2	0.412	0.070	52	43.66	58.2
3	0.452	0.19	53	47.93	60.0
4	0.496	0.38	54	52.63	61.8
5	0.545	0.64	55	57.77	63.4
6	0.598	0.96	56	63.41	64.7
7	0.657	1.33	57	69.62	66.0
8	0.721	1.75	58	76.43	67.2
9	0.791	2.22	59	83.90	68.7
10	0.869	2.72	60	92.09	70.6
11	0.953	3.25	61	101.1	73.0
12	1.047	3.81	62	111.0	75.9
13	1.149	4.38	63	121.8	79.3
14	1.261	4.98	64	133.7	82.9
15	1.385	5.61	65	146.8	86.5
16	1.520	6.27	66	161.2	89.9
17	1.669	6.95	67	176.8	92.9
18	1.832	7.69	68	194.2	95.5
19	2.010	8.47	69	213.2	97.4
20	2.207	9.31	70	234.1	98.7
21	2.423	10.2	71	256.8	99.5
22	2.660	11.2	72	282.1	99.9
23	2.920	12.3	73	309.6	99.97
24	3.206	13.4	74	339.8	99.997
25	3.519	14.7	75	373.1	100
26	3.862	16.0	76	409.6	100
27	4.241	17.5	77	449.7	100
28	4.656	19.0	78	493.6	100
29	5.111	20.5	79	541.9	100
30	5.611	22.2	80	594.9	100
31	6.158	23.9	81	653.0	100
32	6.761	25.6	82	716.9	100
33	7.421	27.3	83	786.9	100
34	8.147	29.0	84	863.9	100
35	8.944	30.7		948.2	100
36	9.819	32.4			
37	10.78	34.1			
38	11.83	35.8			
39	12.99	37.5			
40	14.26	39.2			
41	15.65	41.0			
42	17.18	42.8			
43	18.86	44.6			
44	20.70	46.3			
45	22.73	48.0			
46	24.95	49.4			
47	27.38	50.8			
48	30.07	52.1			
49	33.00	53.4			
50	36.24	54.8			



LS Particle Size Analyzer

Page 1

22 May 2002 11:20

US Waterways Experiment Station

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Operator: Susan Bailey
Optical model: Fraunhofer
LS 100Q Fluid Module

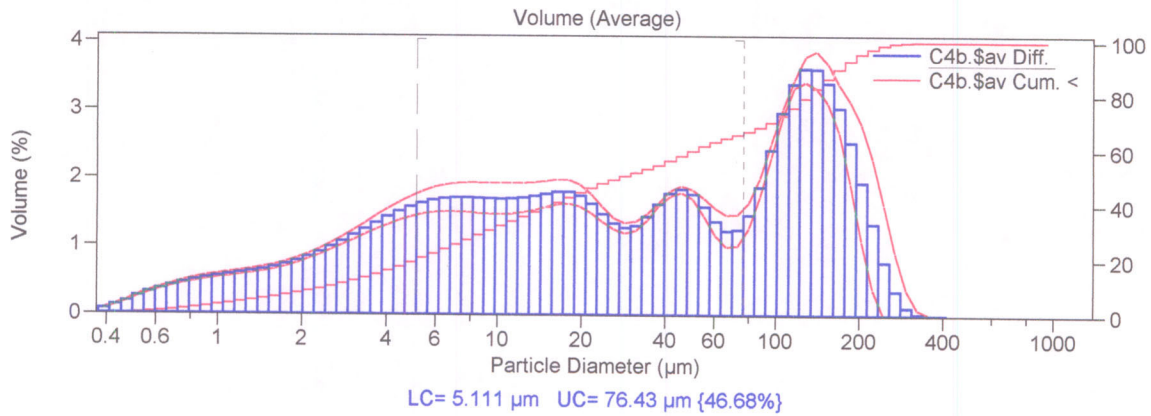
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Fluid: Water
Software: 3.01 2.11

Firmware: 2.02 2.02

Average of 3 Files:

C4b1.\$av C4b2.\$av C4b3.\$av



Appendix B

Statistical Analysis of Results

Statistical Procedures, Assumptions and Analysis

Step (A). Evaluate the equality of variance assumption using the folded form of the F statistic (Snedecor and Cochran 1980).¹ The null hypothesis is that the variance of group 1 is equal to the group 2 variance. The alternative hypothesis is that the variance of group 1 is not equal to the group 2 variance. These results are shown in Tables B3, B6, and B9. If probability $Pr > F$ is less than 0.05, the null hypothesis was rejected.

Step (B). If the equality of variance hypothesis is not rejected, the test statistic was calculated using a pooled estimate of the variance. If the equality of variance hypothesis is rejected, a test statistic that assumes unequal population variances was utilized (Snedecor and Cochran 1980). These results are shown in Tables B2, B5, and B8. The respective hypotheses were expressed as $H_0: \mu_{\text{Feed}} \leq \mu_{\text{Bulk}}$ and $H_A: \mu_{\text{Feed}} > \mu_{\text{Bulk}}$; $H_0: \mu_{\text{Underflow}} \leq \mu_{\text{Sand}}$ and $H_A: \mu_{\text{Underflow}} > \mu_{\text{Sand}}$; $H_0: \mu_{\text{Overflow}} \leq \mu_{\text{Silt/Clay}}$ and $H_A: \mu_{\text{Overflow}} > \mu_{\text{Silt/Clay}}$. The one-tailed t-test was conducted at $\alpha=0.05$. For a one-tailed t-test halve the $\text{Prob} > |T|$ value. Reject the null hypothesis if half the $\text{Prob} > |T|$ is less than 0.05.

From the underflow and sand data one would conclude that the underflow mean concentrations are less than or equal to the sand mean concentrations (Table B2). For the current experimental design, the mean comparison for nickel was the only comparison with a power greater than 0.75. From the overflow and silt/clay data one would conclude that the arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, barium, PCB 1242, PCB 1260, oil and grease, and TRPH overflow mean concentrations are less than or equal to the silt/clay mean concentrations and the TOC overflow mean concentration is greater than the silt/clay mean concentration (Table B5). For the current experimental design, the TOC and TRPH comparisons were the only comparisons with a power greater than 0.75. From the feed and bulk data one would conclude that the arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, barium, PCB 1242, TOC, oil and grease, and TRPH feed mean concentrations are less than or equal to the bulk mean concentrations and the PCB 1260 feed mean concentration is greater than the bulk mean concentration (Table B8). For the current experimental design, the PCB 1242 comparison was the only comparison with a power greater than 0.75.

An alternate way to write the respective hypotheses was $H_0: \mu_{\text{Feed}} = \mu_{\text{Bulk}}$ and $H_A: \mu_{\text{Feed}} \neq \mu_{\text{Bulk}}$; $H_0: \mu_{\text{Underflow}} = \mu_{\text{Sand}}$ and $H_A: \mu_{\text{Underflow}} \neq \mu_{\text{Sand}}$; $H_0: \mu_{\text{Overflow}} = \mu_{\text{Silt/Clay}}$ and $H_A: \mu_{\text{Overflow}} \neq \mu_{\text{Silt/Clay}}$. Reject the null hypothesis if the $\text{Prob} > |T|$ is less than 0.05.

From the underflow and sand data one would conclude that the underflow mean concentrations are equal to the sand mean concentrations (Table B2). For the current experimental design, the nickel and PCB 1260 comparisons were the

¹ References cited in this appendix are included in the References section at the end of the main text.

only comparisons with a power greater than 0.75. From the overflow and silt/clay data one would conclude that the zinc, oil and grease, and TRPH overflow mean concentrations are equal to the silt/clay mean concentrations and the arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, barium, TOC, PCB 1242, and PCB 1260 overflow mean concentrations are not equal to the silt/clay mean concentrations (Table B5). For the current experimental design, the power of the comparison for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, barium, PCB 1242, PCB 1260, and TOC was greater than 0.75. From the feed and bulk data one would conclude that the arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, barium, TOC, oil and grease, and TRPH feed mean concentrations are equal to the bulk mean concentrations and the PCB 1242 and PCB 1260 feed mean concentrations are not equal to the bulk mean concentrations (Table B8). For the current experimental design, the power of the comparison for arsenic, chromium, nickel, barium, PCB 1242, PCB 1260, oil and grease, and TRPH was greater than 0.75.

Table B1
Sand and Underflow Summary

Variable	TYPE	N	Lower CL		Upper CL		Lower CL		Upper CL	
			Mean	Mean	Mean	Mean	Std Dev	Std Dev	Std Dev	Std Err
AS	SAND	2	-0.185	0.45	1.0853	0.0315	0.0707	2.2564	0.05	
AS	UNDERFLOW	10	0.4376	0.4883	0.539	0.0487	0.0709	0.1294	0.0224	
AS	Diff (1-2)		-0.161	-0.038	0.084	0.0495	0.0709	0.1243	0.0549	
CD	SAND	2	-0.087	0.04	0.1671	0.0063	0.0141	0.4513	0.01	
CD	UNDERFLOW	10	-0.002	0.0591	0.12	0.0586	0.0851	0.1554	0.0269	
CD	Diff (1-2)		-0.159	-0.019	0.1205	0.0565	0.0809	0.1419	0.0626	
CR	SAND	2	-2.668	3.05	8.7678	0.2839	0.6364	20.308	0.45	
CR	UNDERFLOW	10	2.4997	2.896	3.2923	0.3811	0.554	1.0114	0.1752	
CR	Diff (1-2)		-0.817	0.154	1.1253	0.3932	0.5628	0.9876	0.4359	
CU	SAND	2	-71.91	10.05	92.005	4.0696	9.1217	291.07	6.45	
CU	UNDERFLOW	10	2.0019	3.386	4.7701	1.3309	1.9349	3.5324	0.6119	
CU	Diff (1-2)		0.763	6.664	12.565	2.389	3.4191	6.0002	2.6484	
PB	SAND	2	-26.17	5.6	37.366	1.5774	3.5355	112.82	2.5	
PB	UNDERFLOW	10	2.2494	2.937	3.6246	0.6611	0.9612	1.7547	0.3039	
PB	Diff (1-2)		0.173	2.663	5.153	1.0081	1.4427	2.5319	1.1175	
HG	SAND	2	-0.097	0.03	0.1571	0.0063	0.0141	0.4513	0.01	
HG	UNDERFLOW	10	0.02	0.02	0.02	.	0	.	0	
HG	Diff (1-2)		0.0023	0.01	0.0177	0.0031	0.0045	0.0078	0.0035	
NI	SAND	2	-1.612	2.2	6.0119	0.1893	0.4243	13.538	0.3	
NI	UNDERFLOW	10	2.1989	2.578	2.9571	0.3645	0.5299	0.9674	0.1676	
NI	Diff (1-2)		-1.276	-0.378	0.52	0.3636	0.5203	0.9131	0.403	
SE	SAND	2	0.1	0.1	0.1	.	0	.	0	
SE	UNDERFLOW	10	0.1	0.1	0.1	.	0	.	0	
SE	Diff (1-2)		.	0	.	.	0	.	.	
AG	SAND	2	-0.871	0.4	1.6706	0.0631	0.1414	4.5128	0.1	
AG	UNDERFLOW	10	0.0615	0.08	0.0985	0.0178	0.0258	0.0471	0.0082	
AG	Diff (1-2)		0.232	0.32	0.408	0.0356	0.051	0.0895	0.0395	
ZN	SAND	2	-8.101	13.5	35.101	1.0726	2.4042	76.717	1.7	
ZN	UNDERFLOW	10	4.9366	5.431	5.9254	0.4754	0.6912	1.2618	0.2186	
ZN	Diff (1-2)		6.3362	8.069	9.8018	0.7015	1.004	1.7619	0.7777	
BA	SAND	2	-4.294	4.6	13.494	0.4417	0.9899	31.589	0.7	
BA	UNDERFLOW	10	3.7931	5.052	6.3109	1.2104	1.7598	3.2127	0.5565	
BA	Diff (1-2)		-3.384	-0.452	2.4796	1.1868	1.6986	2.9809	1.3157	
pcb_1242	SAND	2	-559.8	444	1447.8	49.845	111.72	3565.1	79	
pcb_1242	UNDERFLOW	10	126.31	144.03	161.75	17.035	24.767	45.214	7.8319	
pcb_1242	Diff (1-2)		226.74	299.97	373.2	29.646	42.429	74.461	32.866	
pcb_1260	SAND	2	-71.36	21.4	114.16	4.6059	10.324	329.43	7.3	
pcb_1260	UNDERFLOW	10	8.3325	11.91	15.487	3.4399	5.001	9.1298	1.5814	
pcb_1260	Diff (1-2)		-0.45	9.49	19.43	4.024	5.7591	10.107	4.461	
toc	SAND	2	-788.6	1435	3658.6	110.42	247.49	7897.4	175	
toc	UNDERFLOW	10	539.92	1019	1498.1	460.65	669.71	1222.6	211.78	
toc	Diff (1-2)		-688.8	416	1520.8	447.28	640.14	1123.4	495.85	
OG	SAND	2	-122.2	43	208.18	8.2024	18.385	586.66	13	
OG	UNDERFLOW	10	14.003	17.55	21.097	3.4102	4.9579	9.0512	1.5678	
OG	Diff (1-2)		12.543	25.45	38.357	5.2251	7.4781	13.124	5.7925	
TRPH	SAND	2	-97.5	10.5	118.5	5.3631	12.021	383.59	8.5	
TRPH	UNDERFLOW	10	20.058	20.85	21.642	0.7613	1.1068	2.0206	0.35	
TRPH	Diff (1-2)		-17.16	-10.35	-3.544	2.7555	3.9437	6.9209	3.0548	

Table B2
Sand and Underflow T-Test Results

Variable	Method	Variances	DF	t Value	Pr > t
AS	Pooled	Equal	10	-0.70	0.5012
AS	Satterthwaite	Unequal	1.44	-0.70	0.5803
CD	Pooled	Equal	10	-0.30	0.7669
CD	Satterthwaite	Unequal	9.95	-0.66	0.5215
CR	Pooled	Equal	10	0.35	0.7312
CR	Satterthwaite	Unequal	1.32	0.32	0.7928
CU	Pooled	Equal	10	2.52	0.0306
CU	Satterthwaite	Unequal	1.02	1.03	0.4886
PB	Pooled	Equal	10	2.38	0.0384
PB	Satterthwaite	Unequal	1.03	1.06	0.4782
HG	Pooled	Equal	10	2.89	0.0162
HG	Satterthwaite	Unequal	1	1.00	0.5000
NI	Pooled	Equal	10	-0.94	0.3704
NI	Satterthwaite	Unequal	1.7	-1.10	0.4026
SE	Pooled	Equal	10	.	.
SE	Satterthwaite	Unequal	10	.	.
AG	Pooled	Equal	10	8.10	<.0001
AG	Satterthwaite	Unequal	1.01	3.19	0.1908
ZN	Pooled	Equal	10	10.38	<.0001
ZN	Satterthwaite	Unequal	1.03	4.71	0.1273
BA	Pooled	Equal	10	-0.34	0.7383
BA	Satterthwaite	Unequal	2.55	-0.51	0.6536
pcb_1242	Pooled	Equal	10	9.13	<.0001
pcb_1242	Satterthwaite	Unequal	1.02	3.78	0.1609
pcb_1260	Pooled	Equal	10	2.13	0.0593
pcb_1260	Satterthwaite	Unequal	1.1	1.27	0.4103
toc	Pooled	Equal	10	0.84	0.4211
toc	Satterthwaite	Unequal	4.9	1.51	0.1915
OG	Pooled	Equal	10	4.39	0.0013
OG	Satterthwaite	Unequal	1.03	1.94	0.2970
TRPH	Pooled	Equal	10	-3.39	0.0069
TRPH	Satterthwaite	Unequal	1	-1.22	0.4375

Table B3
Sand and Underflow Equality of Variances Test Results

Variable	Method	Num DF	Den DF	F Value	Pr > F
AS	Folded F	9	1	1.00	1.0000
CD	Folded F	9	1	36.23	0.2566
CR	Folded F	1	9	1.32	0.5606
CU	Folded F	1	9	22.22	0.0022
PB	Folded F	1	9	13.53	0.0102
HG	Folded F	1	9	Infy	<.0001
NI	Folded F	9	1	1.56	1.0000
SE	Folded F	1	9	.	.
AG	Folded F	1	9	30.00	0.0008
ZN	Folded F	1	9	12.10	0.0139
BA	Folded F	9	1	3.16	0.8250
pcb_1242	Folded F	1	9	20.35	0.0029
pcb_1260	Folded F	1	9	4.26	0.1380
toc	Folded F	9	1	7.32	0.5595
OG	Folded F	1	9	13.75	0.0097
TRPH	Folded F	1	9	117.96	<.0001

Table B4
Fines (Silt/Clay) and Overflow Summary

Variable	TYPE	N	Lower CL	Mean	Upper CL	Lower CL	Std Dev	Upper CL	Std Err
			Mean		Mean	Std Dev		Std Dev	
AS	FINES	2	4.4147	5.05	5.6853	0.0315	0.0707	2.2564	0.05
AS	OVERFLOW	10	3.1251	3.445	3.7649	0.3076	0.4472	0.8165	0.1414
AS	Diff (1-2)		0.8717	1.605	2.3383	0.2969	0.4249	0.7456	0.3291
CD	FINES	2	0.6562	1.355	2.0538	0.0347	0.0778	2.482	0.055
CD	OVERFLOW	10	0.7471	0.8208	0.8945	0.0709	0.1031	0.1882	0.0326
CD	Diff (1-2)		0.3602	0.5342	0.7082	0.0705	0.1008	0.177	0.0781
CR	FINES	2	50.09	79.95	109.81	1.4827	3.3234	106.05	2.35
CR	OVERFLOW	10	43.629	48.75	53.871	4.9243	7.1592	13.07	2.2639
CR	Diff (1-2)		19.338	31.2	43.062	4.802	6.8726	12.061	5.3235
CU	FINES	2	55.555	75.25	94.945	0.978	2.192	69.948	1.55
CU	OVERFLOW	10	46.111	50	53.889	3.7398	5.4371	9.9261	1.7194
CU	Diff (1-2)		16.268	25.25	34.232	3.6365	5.2045	9.1335	4.0314
PB	FINES	2	65.623	101.2	136.78	1.7667	3.9598	126.36	2.8
PB	OVERFLOW	10	54.371	59.59	64.809	5.0183	7.2957	13.319	2.3071
PB	Diff (1-2)		29.47	41.61	53.75	4.9146	7.0337	12.344	5.4483
HG	FINES	2	3.3229	3.45	3.5771	0.0063	0.0141	0.4513	0.01
HG	OVERFLOW	10	1.1581	1.294	1.4299	0.1307	0.19	0.3468	0.0601
HG	Diff (1-2)		1.8448	2.156	2.4672	0.126	0.1803	0.3164	0.1397
NI	FINES	2	20.747	27.1	33.453	0.3155	0.7071	22.564	0.5
NI	OVERFLOW	10	17.502	18.98	20.458	1.4207	2.0655	3.7708	0.6532
NI	Diff (1-2)		4.7162	8.12	11.524	1.378	1.9722	3.4611	1.5277
SE	FINES	2	-0.171	1.1	2.3706	0.0631	0.1414	4.5128	0.1
SE	OVERFLOW	10	0.5579	0.6489	0.7399	0.0875	0.1272	0.2321	0.0402
SE	Diff (1-2)		0.2291	0.4511	0.6731	0.0899	0.1287	0.2258	0.0997
AG	FINES	2	-0.377	0.8995	2.1765	0.0634	0.1421	4.5353	0.1005
AG	OVERFLOW	10	0.4538	0.5292	0.6046	0.0725	0.1055	0.1925	0.0333
AG	Diff (1-2)		0.181	0.3703	0.5596	0.0766	0.1097	0.1925	0.085
ZN	FINES	2	-1699	148.56	1996.6	91.769	205.69	6563.6	145.45
ZN	OVERFLOW	10	106.52	116.94	127.36	10.022	14.57	26.599	4.6074
ZN	Diff (1-2)		-83.15	31.615	146.38	46.463	66.497	116.7	51.509
BA	FINES	2	72.734	104.5	136.27	1.5774	3.5355	112.82	2.5
BA	OVERFLOW	10	71.968	79.35	86.732	7.0976	10.319	18.838	3.2631
BA	Diff (1-2)		8.1449	25.15	42.155	6.8843	9.8528	17.291	7.632
pcb_1242	FINES	2	4345.6	5927.5	7509.4	78.553	176.07	5618.4	124.5
pcb_1242	OVERFLOW	10	3642.6	4037.9	4433.2	380.1	552.61	1008.8	174.75
pcb_1242	Diff (1-2)		979.7	1889.6	2799.5	368.36	527.2	925.2	408.37
pcb_1260	FINES	2	298.44	317.5	336.56	0.9464	2.1213	67.692	1.5
pcb_1260	OVERFLOW	10	92.963	109.9	126.84	16.285	23.676	43.224	7.4871
pcb_1260	Diff (1-2)		168.82	207.6	246.38	15.701	22.471	39.436	17.406
toc	FINES	2	-66573	21100	108773	4353.6	9758.1	311382	6900
toc	OVERFLOW	10	42701	46480	50259	3633.9	5283.1	9644.8	1670.6
toc	Diff (1-2)		-35538	-25380	-15222	4112.4	5885.7	10329	4559.1
OG	FINES	2	-859.2	475	1809.2	66.25	148.49	4738.4	105
OG	OVERFLOW	10	351.08	435	518.92	80.688	117.31	214.16	37.096
OG	Diff (1-2)		-168.5	40	248.47	84.397	120.79	211.98	93.563
TRPH	FINES	2	-619.4	270	1159.4	44.167	98.995	3158.9	70
TRPH	OVERFLOW	10	271.76	338	404.24	63.688	92.592	169.04	29.28
TRPH	Diff (1-2)		-228.9	-68	92.945	65.157	93.252	163.65	72.233

Table B5
Fines (Silt/Clay) and Overflow T-Test Results

Variable	Method	Variances	DF	t Value	Pr > t
AS	Pooled	Equal	10	4.88	0.0006
AS	Satterthwaite	Unequal	9.99	10.70	<.0001
CD	Pooled	Equal	10	6.84	<.0001
CD	Satterthwaite	Unequal	1.8	8.36	0.0190
CR	Pooled	Equal	10	5.86	0.0002
CR	Satterthwaite	Unequal	3.39	9.56	0.0014
CU	Pooled	Equal	10	6.26	<.0001
CU	Satterthwaite	Unequal	4.26	10.91	0.0003
PB	Pooled	Equal	10	7.64	<.0001
PB	Satterthwaite	Unequal	2.68	11.47	0.0024
HG	Pooled	Equal	10	15.44	<.0001
HG	Satterthwaite	Unequal	9.44	35.40	<.0001
NI	Pooled	Equal	10	5.32	0.0003
NI	Satterthwaite	Unequal	5.53	9.87	0.0001
SE	Pooled	Equal	10	4.53	0.0011
SE	Satterthwaite	Unequal	1.35	4.19	0.0993
AG	Pooled	Equal	10	4.36	0.0014
AG	Satterthwaite	Unequal	1.23	3.50	0.1392
ZN	Pooled	Equal	10	0.61	0.5531
ZN	Satterthwaite	Unequal	1	0.22	0.8638
BA	Pooled	Equal	10	3.30	0.0081
BA	Satterthwaite	Unequal	5.53	6.12	0.0012
pcb_1242	Pooled	Equal	10	4.63	0.0009
pcb_1242	Satterthwaite	Unequal	6.16	8.81	0.0001
pcb_1260	Pooled	Equal	10	11.93	<.0001
pcb_1260	Satterthwaite	Unequal	9.6	27.19	<.0001
toc	Pooled	Equal	10	-5.57	0.0002
toc	Satterthwaite	Unequal	1.12	-3.57	0.1521
OG	Pooled	Equal	10	0.43	0.6781
OG	Satterthwaite	Unequal	1.26	0.36	0.7702
TRPH	Pooled	Equal	10	-0.94	0.3687
TRPH	Satterthwaite	Unequal	1.38	-0.90	0.4992

Table B6
Fines (Silt/Clay) and Overflow Equality of Variances Test Results

Variable	Method	Num DF	Den DF	F Value	Pr > F
AS	Folded F	9	1	40.01	0.2443
CD	Folded F	9	1	1.76	1.0000
CR	Folded F	9	1	4.64	0.6930
CU	Folded F	9	1	6.15	0.6075
PB	Folded F	9	1	3.39	0.7990
HG	Folded F	9	1	180.47	0.1154
NI	Folded F	9	1	8.53	0.5201
SE	Folded F	1	9	1.24	0.5897
AG	Folded F	1	9	1.82	0.4214
ZN	Folded F	1	9	199.30	<.0001
BA	Folded F	9	1	8.52	0.5205
pcb_1242	Folded F	9	1	9.85	0.4854
pcb_1260	Folded F	9	1	124.57	0.1389
toc	Folded F	1	9	3.41	0.1956
OG	Folded F	1	9	1.60	0.4747
TRPH	Folded F	1	9	1.14	0.6257

Table B7
Bulk and Feed Summary

Variable	TYPE	N	Lower CL		Upper CL		Lower CL		Upper CL	
			Mean	Mean	Mean	Mean	Std Dev	Std Dev	Std Dev	Std Err
AS	BULK	2	0.9294	2.2	3.4706	0.0631	0.1414	4.5128	0.1	
AS	FEED	10	2.1377	2.805	3.4723	0.6416	0.9328	1.7028	0.295	
AS	Diff (1-2)		-2.134	-0.605	0.9242	0.6191	0.886	1.5549	0.6863	
CD	BULK	2	0.5473	0.6045	0.6617	0.0028	0.0064	0.2031	0.0045	
CD	FEED	10	0.4583	0.5809	0.7035	0.1179	0.1714	0.3128	0.0542	
CD	Diff (1-2)		-0.257	0.0236	0.3042	0.1136	0.1626	0.2853	0.1259	
CR	BULK	2	18.364	29.8	41.236	0.5679	1.2728	40.615	0.9	
CR	FEED	10	29.449	38.44	47.431	8.6451	12.569	22.945	3.9745	
CR	Diff (1-2)		-29.23	-8.64	11.951	8.336	11.93	20.937	9.2412	
CU	BULK	2	-37.08	32.8	102.68	3.4702	7.7782	248.2	5.5	
CU	FEED	10	28.542	37.81	47.078	8.9111	12.955	23.651	4.0968	
CU	Diff (1-2)		-26.64	-5.01	16.623	8.7579	12.534	21.997	9.709	
PB	BULK	2	33.535	43.7	53.865	0.5048	1.1314	36.102	0.8	
PB	FEED	10	32.818	41.69	50.562	8.5304	12.402	22.641	3.9218	
PB	Diff (1-2)		-18.31	2.01	22.325	8.2244	11.771	20.657	9.1176	
HG	BULK	2	1.0215	1.085	1.1485	0.0032	0.0071	0.2256	0.005	
HG	FEED	10	0.6547	0.8834	1.1121	0.2199	0.3198	0.5838	0.1011	
HG	Diff (1-2)		-0.322	0.2016	0.7252	0.212	0.3034	0.5324	0.235	
NI	BULK	2	4.4469	10.8	17.153	0.3155	0.7071	22.564	0.5	
NI	FEED	10	12.387	15.718	19.049	3.203	4.6566	8.5012	1.4726	
NI	Diff (1-2)		-12.55	-4.918	2.7162	3.0906	4.4233	7.7626	3.4263	
SE	BULK	2	0.4931	0.4995	0.5059	0.0003	0.0007	0.0226	0.0005	
SE	FEED	10	0.3762	0.5116	0.647	0.1302	0.1892	0.3455	0.0598	
SE	Diff (1-2)		-0.322	-0.012	0.2977	0.1254	0.1795	0.315	0.1391	
AG	BULK	2	-2.048	0.4995	3.0471	0.1265	0.2835	9.0481	0.2005	
AG	FEED	10	0.2617	0.3447	0.4277	0.0798	0.116	0.2117	0.0367	
AG	Diff (1-2)		-0.09	0.1548	0.3997	0.0992	0.1419	0.2491	0.1099	
ZN	BULK	2	49.417	76.1	102.78	1.325	2.9698	94.768	2.1	
ZN	FEED	10	62.753	81.4	100.05	17.93	26.067	47.589	8.2432	
ZN	Diff (1-2)		-48.01	-5.3	37.412	17.291	24.747	43.43	19.169	
BA	BULK	2	12.99	42.85	72.71	1.4827	3.3234	106.05	2.35	
BA	FEED	10	46.266	61.12	75.974	14.283	20.765	37.908	6.5664	
BA	Diff (1-2)		-52.32	-18.27	15.777	13.784	19.727	34.62	15.281	
pcb_1242	BULK	2	3341.5	3754.5	4167.5	20.506	45.962	1466.7	32.5	
pcb_1242	FEED	10	2356	2713.8	3071.6	344.04	500.17	913.12	158.17	
pcb_1242	Diff (1-2)		221.36	1040.7	1860	331.7	474.73	833.12	367.72	
pcb_1260	BULK	2	2.152	39	75.848	1.8298	4.1012	130.87	2.9	
pcb_1260	FEED	10	114.55	144.96	175.37	29.245	42.517	77.62	13.445	
pcb_1260	Diff (1-2)		-175.6	-106	-36.31	28.198	40.356	70.822	31.26	
toc	BULK	2	12053	27300	42547	757.14	1697.1	54153	1200	
toc	FEED	10	20471	26500	32529	5797	8427.9	15386	2665.1	
toc	Diff (1-2)		-13030	800	14630	5599.1	8013.4	14063	6207.1	
OG	BULK	2	92.938	220	347.06	6.3095	14.142	451.28	10	
OG	FEED	10	270.85	332	393.15	58.795	85.479	156.05	27.031	
OG	Diff (1-2)		-252.2	-112	28.171	56.747	81.216	142.53	62.909	
TRPH	BULK	2	121.47	185	248.53	3.1548	7.0711	225.64	5	
TRPH	FEED	10	209.04	259	308.96	48.034	69.833	127.49	22.083	
TRPH	Diff (1-2)		-188.4	-74	40.406	46.316	66.287	116.33	51.346	

Table B8
Bulk and Feed T-Test Results

Variable	Method	Variances	DF	t Value	Pr > t
AS	Pooled	Equal	10	-0.88	0.3987
AS	Satterthwaite	Unequal	10	-1.94	0.0807
CD	Pooled	Equal	10	0.19	0.8551
CD	Satterthwaite	Unequal	9.12	0.43	0.6744
CR	Pooled	Equal	10	-0.93	0.3718
CR	Satterthwaite	Unequal	9.72	-2.12	0.0608
CU	Pooled	Equal	10	-0.52	0.6171
CU	Satterthwaite	Unequal	2.34	-0.73	0.5313
PB	Pooled	Equal	10	0.22	0.8300
PB	Satterthwaite	Unequal	9.61	0.50	0.6268
HG	Pooled	Equal	10	0.86	0.4110
HG	Satterthwaite	Unequal	9.04	1.99	0.0775
NI	Pooled	Equal	10	-1.44	0.1817
NI	Satterthwaite	Unequal	10	-3.16	0.0101
SE	Pooled	Equal	10	-0.09	0.9324
SE	Satterthwaite	Unequal	9	-0.20	0.8443
AG	Pooled	Equal	10	1.41	0.1894
AG	Satterthwaite	Unequal	1.07	0.76	0.5798
ZN	Pooled	Equal	10	-0.28	0.7878
ZN	Satterthwaite	Unequal	9.83	-0.62	0.5474
BA	Pooled	Equal	10	-1.20	0.2594
BA	Satterthwaite	Unequal	9.98	-2.62	0.0257
pcb_1242	Pooled	Equal	10	2.83	0.0178
pcb_1242	Satterthwaite	Unequal	9.62	6.45	<.0001
pcb_1260	Pooled	Equal	10	-3.39	0.0069
pcb_1260	Satterthwaite	Unequal	9.67	-7.70	<.0001
toc	Pooled	Equal	10	0.13	0.9000
toc	Satterthwaite	Unequal	9.5	0.27	0.7902
OG	Pooled	Equal	10	-1.78	0.1054
OG	Satterthwaite	Unequal	9.95	-3.89	0.0031
TRPH	Pooled	Equal	10	-1.44	0.1801
TRPH	Satterthwaite	Unequal	9.72	-3.27	0.0088

Table B9
Bulk and Feed Equality of Variances Test Results

Variable	Method	Num DF	Den DF	F Value	Pr > F
AS	Folded F	9	1	43.50	0.2343
CD	Folded F	9	1	725.01	0.0576
CR	Folded F	9	1	97.51	0.1569
CU	Folded F	9	1	2.77	0.8739
PB	Folded F	9	1	120.16	0.1414
HG	Folded F	9	1	2044.94	0.0343
NI	Folded F	9	1	43.37	0.2347
SE	Folded F	9	1	71613.0	<.0001
AG	Folded F	1	9	5.98	0.0741
ZN	Folded F	9	1	77.04	0.1764
BA	Folded F	9	1	39.04	0.2472
pcb_1242	Folded F	9	1	118.42	0.1424
pcb_1260	Folded F	9	1	107.47	0.1495
toc	Folded F	9	1	24.66	0.3102
OG	Folded F	9	1	36.53	0.2555
TRPH	Folded F	9	1	97.53	0.1569

Appendix C

Chemical Analysis Sample Listing, Data Validation, Raw Data Sheets

Table C1 Green Bay Physical Separation Samples - ECB Lab ID #s					
Sample/Analyte	TOC/TVS/O&G/TRPH	PCBs	PAHs	Metals	Soot
Demo					
GB Underflow 1400-1715 (-1, -2) (solids)	90838-47	90808-17	N/A	90823-32	
GB Feed 1400-1715-1 (solids)	90848-52	90818-22	N/A	90833-37	
GB Feed 1400-1715-2 (solids)	90954-58	90924-28	N/A	90939-43	
GB Overflow 1400-1715 (-1, -2) (solids)	90944-53	90914-23	N/A	90929-38	
GB Overflow 1400-1715 -1 (supernatant)		90853-57	N/A	90904,6,8,10,12	
GB Overflow 1400-1715 -2 (supernatant)		90883-87	N/A	90905,7,9,11,13	
GB Feed 1400-1715 -1 (supernatant)		90858-62	N/A	90894,6,8,900,02	
GB Feed 1400-1715 -2 (supernatant)		90888-92	N/A	90895,7,9,901,03	
Supply Water		90789	N/A	90893	
MetPro Underflow	92103-4	92099-100	N/A	92107-8	
MetPro Overflow	92105-6	92101-2	N/A	92109-10	
MetPro Underflow Supernatant		92111	N/A	92113	
MetPro Overflow Supernatant		92112	N/A	92114	
Soot Samples					92455-514
Carbon Treated Supernatant		92412	N/A	92413	
Cell 4 Characterization					
Cell 4, Bulk A,B	89589-90	89587-88	89591-92	89585-6	90795-802
Cell 4 Sand 1,2	93027-28	93023-24	N/A	93019-20	
Silt/Clay 1,2	93029-30	93025-26	N/A	93021-22	
Clay 1,2 Cell 4	94943-4	94940-1	N/A	94937-8	
Silt Cell 4	94945	94942	N/A	94939	
Soot Samples					89607-18
Cell 5 Characterization					
Bulk 1,2,3	89331-33	89343-45	89349-51	89337-39	
Bulk 4,5	89334-36	89346-48	89352-54	89340-42	
Bulk 1,2,3 <75um	89375-76	89379-80	89383-84	89371-72	
Bulk 1,2,3 >75um	89377-78	89381-82	89385-86	89373-74	
Bulk 1,2,3 >2.0 sp.gr.	89729	89725	89727	89723	
Bulk 1,2,3 <2.0 sp.gr.	89730	89726	89728	89724	
Wastewater		96653		96652	

Table C2							
Data Validation Summary							
Green Bay Physical Separation Samples - ECB Lab ID #s							
Sample/Analyte	Metals	No. of Samples	No. of Analytes	Precision 1	Accuracy 2	Completeness 3	Total Tests 4
DEMO	GROUP TOTALS			99.9%	97.3%	97.1%	
				TESTS COMPLETED			
GB Underflow 1400-1715 (-1, -2) (solids)	90823-32	10	14	140	140	140	140
GB Feed 1400-1715-1 (solids)	90833-37	5	14	70	70	70	70
GB Feed 1400-1715-2 (solids)	90939-43	5	15	75	75	75	75
GB Overflow 1400-1715 (-1, -2) (solids)	90929-38	10	15	150	150	150	150
GB Overflow 1400-1715 -1 (supernatant)	90904,6,8,10,12						
GB Overflow 1400-1715 -2 (supernatant)	90905,7,9,11,13						
GB Feed 1400-1715 -1 (supernatant)	90894,6,8,900,02						
GB Feed 1400-1715 -2 (supernatant)	90895,7,9,901,03						
Supply Water	90893	21	15	315	294	294	315
Carbon Treated Supernatant	92413	1	14	13	14	13	14
	GROUP SUM			763	743	742	764
CELL 4 CHARACTERIZATION	GROUP TOTALS			92.1%	100.0%	92.1%	
				TESTS COMPLETED			
Cell 4, Bulk A,B	89585-6	2	15	28	30	28	30
Cell 4 Sand 1,2	93019-20	2	13	22	26	22	26
Silt/Clay 1,2	93021-22	2	13	22	26	22	26
Clay 1,2 Cell 4	94937-38	2	15	30	30	30	30
Silt Cell 4	94939	1	15	15	15	15	15
	GROUP SUM			117	127	117	127

Table C2 (Concluded)									
Green Bay Physical Separation Samples - ECB Lab ID #'s									
Sample/Analyte	Metals	No. of Samples	No. of Analytes	Precision 1	Accuracy 2	Completeness 3	Total Tests 4		
CELL 5 CHARACTERIZATION	GROUP TOTALS			97.6%	100.0%	97.6%			
				TESTS COMPLETED					
Bulk 1,2,3	89337-39	3	14	42	42	42	42		
Bulk 4,5	89340-42	3	14	42	42	42	42		
Bulk 1,2,3 <75um	89371-72	4	14	52	56	52	56		
Bulk 1,2,3 >75um	89373-74								
Bulk 1,2,3 >2.0 sp.gr.	89723	2	15	30	30	30	30		
Bulk 1,2,3 <2.0 sp.gr.	89724								
	GROUP SUM				170	166	170		
<p>Precision 1 The number of tests completed whose relative percent differences (RPDs) fell within the test's acceptance criteria.</p> <p>Accuracy 2 The number of tests completed whose percent recoveries (% R) fell within the test's acceptance criteria.</p> <p>Completeness 3 The number of tests completed or that had acceptable QC including 1 and 2 above.</p> <p>Total Tests 4 The number of analytes multiplied by the number of samples.</p>									

U.S. Army Corps of Engineers

Chain of Custody Record

(ER 1110-1-263)

Proj. No.		Project Name		Sample 1 (Signature)		Number of Containers		Particle Size		Remarks	
Date	Time	Pres.	Site Code/Sample Number	Date/Time	Received by: (Sig.)	Date/Time	Received by: (Sig.)	Date/Time	Received for Laboratory by: (Sig.)	Date/Time	Remarks at time of receipt:
8/10/00	13:00	/	G.B. UNDERFLOW	8/10/00 18:45	Butte D. Millard	8/10/00 18:52					
8/10/00	13:00	/	G.B. OVERFLOW								
8/10/00	13:00	/	G.B. FEED								
8/10/00	16:00	/	G.B. UNDERFLOW								
8/10/00	16:00	/	G.B. OVERFLOW								
8/10/00	16:00	/	G.B. FEED								
8/10/00	17:00	/	G.B. UNDERFLOW								
8/10/00	17:00	/	G.B. OVERFLOW								
8/10/00	17:00	/	G.B. FEED								
8/10/00	17:00	/									

Proponent: CEMP-Rt

ENG FORM 5021-R, Oct 90

U.S. Army Corps of Engineers

Chain of Custody-Record
(ER 1110-1-263)

Proj. No.		Project Name		GREEN BAY MOBILE TREATMENT PLANT	
Sampler: (Signature)					
Date	Time	Pres.	Grid	Site Code/Sample Number	Number of Containers
8/9/00	14:55	/	X	GREEN BM CELL #4	1
8/10/00	11:25	/	X	GREEN BM CELL #5	1
8/10/00	12:00	/	X	CELL 4 CHARACTERIZATION SAMPLES	3
8/10/00	12:00	/	X	SUPPLY WATER	1
8/10/00	14:00	/	X	GREEN BAY (G.B.) UNDERFLOW	3
8/10/00	14:00	/	X	GREEN BAY (G.B.) OVERFLOW	3
8/10/00	14:00	/	X	GREEN BAY (G.B.) FEED	3
8/10/00	15:05	/	X	G.B. UNDERFLOW	3
8/10/00	15:05	/	X	G.B. OVERFLOW	3
8/10/00	15:05	/	X	G.B. FEED	3

Sampler Relinquished by:	Date/Time	Received by: (Sig.)	Date/Time	Hazards Associated with Samples
AKC	8/10/00 18:45	<i>[Signature]</i>	8/10/00 18:50	
Relinquished by: (Sig.)	Date/Time	Received by: (Sig.)	Date/Time	
Relinquished by: (Sig.)	Date/Time	Received for Laboratory by: (Sig.)	Date/Time	Remarks at time of receipt:
Custody Seal No.	Lab case No.:			

ENG Form 5021-R, Oct 90

Proponent: CEMP-RT

JOB FILE: 89331

DATE: 22 JU

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT -OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JU
COMPLETION DATE: 22 JU

COLUMN.....	1	2	3
ANALYTE.....	86	100	104
MG/KG.....	TOC	O&G	TRPH

SAMP # DESCRIPTION

89331	BULK 1,2,3-1	CONC	51000	250	120
	5/30/00 10:30	%REC			
	GB/BP CDF	DUPL	48800		
		OID	10040158	55990172	55990172
89332	BULK 1,2,3-2	CONC	48300	200	100
	5/30/00 10:30	%REC			
	GB/BP CDF	DUPL			
		OID	10040158	55990172	55990172
89333	BULK 1,2,3-3	CONC	46400	190	98
	5/30/00 10:30	%REC			
	GB/BP CDF	DUPL			
		OID	10040158	55990172	55990172
89334	BULK 4,5-1	CONC	43900	150	82
	5/26/00 15:30	%REC			
	GB/BP CDF	DUPL			
		OID	10040158	55990172	55990172
89335	BULK 4,5-2	CONC	43800	140	74
	5/26/00 15:30	%REC			
	GB/BP CDF	DUPL			
		OID	10040158	55990172	55990172
89336	BULK 4,5-3	CONC	46800	150	78
	5/26/00 15:30	%REC			
	GB/BP CDF	DUPL			
		OID	10040158	55990172	55990172

TOC Total Organic Carbon

O&G Oil and Grease

TRPH Total Recoverable Petroleum Hydrocarbons

J9331

DATE: 22 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT -OLIN-ESTES
PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 02 JUN
COMPLETION DATE: 22 JUN

COLUMN.....	1	2	3
ANALYTE.....	86	100	104
MG/KG.....	TOC	O&G	TRPH

SAMP # DESCRIPTION

BL#01	METHOD BLANK 01	CONC	<100	<35	<35
		%REC			
		DUPL			
		OID	10040158	55990172	55990172

BL#02	LCS 01	CONC	8927	922	935
		%REC	89.3	90.7	92.0
		DUPL			
		OID	10040160	55990172	55990172

BL#03	EXTERNAL QC 01	CONC	18672	N/A	N/A
		%REC			
		DUPL			
		OID	10040158	55990165	55990167

TOC	Total Organic Carbon	O&G	Oil and Grease
TRPH	Total Recoverable Petroleum Hydrocarbons		

DATE: 22 JUL

6/2/07

ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE TINT PLANT -GLIM-ESTES
CHEN, PRESERVATIVE:

JOB NUMBER: 005499-92110583

RECEIPT DATE: 02 JUN

COMPLETION DATE: 22 JUN

TYPE OF SAMPLE: SEDIMENT

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
PG/NO.....	AG	CO	CR	CU	PG	

SAMP #	DESCRIPTION
--------	-------------

89537	BULK 1,2,3-1	CMC	5.28	0.895	52.9	51.7	63.2	0.965
	5/30/30 10:30	SMC	91.2	79.4	86.4	85.6	101.6	107.5
	GB/SP COT	DLPL	5.38	0.895	52.1	51.1	64.2	0.989
		DID	01260172	01260172	01260172	01260172	01260172	04650168
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	

89358	BULK 1,2,3-2	COND 3.31	0.911	56.6	55.6	65.3	1.02
	5/30/80 10:30	TRFC					
	GR/SP IDF	DUPL					
	DIC 01260172	01260172	01260172	01260172	01260172	01260172	04650168
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	

8933P	PLK 1,2,5-3	CMC 2.70	0.858	47.2	49.3	63.6	0.997
	5/30/80 10:30	REC					
	68/8P CDF	DUPL					
	OLD 01260172		01260172	01260172	01260172	01260172	04600160
			HSA AUTH	HSA AUTH	HSA AUTH	HSA AUTH	

89540	BULK 4,3-1	COND	3.28	0.875	51.8	47.6	63.1	1.02
	5/26/00 15:30	TRAC						
	08/8P CDF	DLPL						
		OID	01260172	01260172	01260172	01260172	01260172	04650168
			NSA AUTH	NSA AUTH	NSA AUTH	NSA AUTH	NSA AUTH	

89541	BULK 4,5-2	COND	3.10	0.871	49.9	48.7	66.1	1.03
	5/26/00 15:30	WREC						
	DB/EP CDF	DIFL						
	DEP	01260172	01260172	01260172	01260172	01260172		04650168
			NSA AUTH	NSA AUTH	NSA AUTH	NSA AUTH		

59542	BULK 4,5-3	COND	3.48	1.07	58.3	50.5	77.1	1.00
	5/26/00 15:30	SRPC						
	GR/EP CDF	SLPL						
		ORD	01260172	01260172	01260172	01260172	01260172	04650168
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	

AS	Arsenic
CR	Chromium
PB	Lead

ED	Codinium
CU	Copper
HG	Mercury

JOB FILE: 89337

DATE: 22 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRTMT PLANT -OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUN
COMPLETION DATE: 22 JUN

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
MG/KG.....	AS	CD	CR	CU	PB	HG

SAMP # DESCRIPTION

R

BL#01	METHOD BLANK 01	CONC	<0.200	<0.020	<0.100	0.200	<0.100	<0.040
		%REC						
		DUPL						
		OID	01260172	01260172	01260172	01260172	01260172	04650168
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	
BL#02	LCS 01	CONC	4.30	2.40	9.90	10.2	5.80	0.0757
		%REC	86.0	100.4	99.1	102.0	116.8	100.9
		DUPL						
		OID	01260172	01260172	01260172	01260172	01260172	04650168
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	
BL#03	EXTERNAL QC 01	CONC	76.8	32.2	12.4	87.5	1150	0.050
		%REC						
		DUPL						
		OID	01260172	01260172	01260172	01260172	01260172	04650168
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH	

AS Arsenic
CR Chromium
PB Lead

CD Cadmium
CU Copper
HG Mercury

JOB FILE: 89357

DATE: 27 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 5) *****

JOB DESCRIPTION: GREEN RAY MOBILE TRIM PLANT -CLIN-ESTES
CENH, PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUL
COMPLETION DATE: 27 JUL

		COLUMN..... 7	8	9	10	11	12
		ANALYTE..... 9	10	11	12	25	30
		MG/KG..... NI	SE	AG	ZN	BA	FE
SAMP #	DESCRIPTION						
89357	BULK 1,2,3-1	CONC 21.2	0.895	0.397	150	80.2	16700
	5/30/00 10:30	AREC 87.8	82.0	83.4	93.2	103.6	115.0
	GB/SP CDF	DUP1 20.6	0.895	0.497	153	83.3	17000
		QID 01260172	01260172	01260172	01260173	01260172	01260173
		HGA AUTH		HGA AUTH			
89358	BULK 1,2,3-2	CONC 26.4	1.30	0.501	142	92.0	17300
	5/30/00 10:30	AREC					
	GB/SP CDF	DUP1					
		QID 01260172	01260172	01260172	01260173	01260172	01260173
		HGA AUTH		HGA AUTH			
89359	BULK 1,2,3-3	CONC 19.3	0.898	0.399	138	75.9	14000
	5/30/00 10:30	AREC					
	GB/SP CDF	DUP1					
		QID 01260172	01260172	01260172	01260173	01260172	01260173
		HGA AUTH		HGA AUTH			
89360	BULK 4,5-1	CONC 20.0	1.09	0.397	133	80.9	16400
	5/26/00 15:30	AREC					
	GB/SP CDF	DUP1					
		QID 01260172	01260172	01260172	01260173	01260172	01260173
		HGA AUTH		HGA AUTH			
89361	BULK 4,5-2	CONC 19.7	1.10	0.400	139	75.3	15000
	5/26/00 15:30	AREC					
	GB/SP CDF	DUP1					
		QID 01260172	01260172	01260172	01260173	01260172	01260173
		HGA AUTH		HGA AUTH			
89362	BULK 4,5-3	CONC 21.9	0.995	0.397	154	88.9	17500
	5/26/00 15:30	AREC					
	GB/SP CDF	DUP1					
		QID 01260172	01260172	01260172	01260173	01260172	01260173
		HGA AUTH		HGA AUTH			
NI	Nickel			SE	Selenium		
AG	Silver			ZN	Zinc		
BA	Barium			FE	Iron		

JOB FILE: 89337

DATE: 22 JU

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET - PAGE 4 OF 6 - 3 *****

JOB DESCRIPTION: GREEN BAY MOBILE TRTMT PLANT - OLIN-ESTES
CHEM. PRESERVATIVE)

JOB NUMBER: 0354P8-92310183

RECEIPT DATE: 02 JU

TYPE OF SAMPLE: SEDIMENT

COMPLETION DATE: 22 JU

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	30
MG/KG.....	NI	SE	AG	ZN	BA	FE

SAMP # DESCRIPTION

BL#01	METHOD BLANK 01	CONC	<0.100	<0.200	<0.100	<1.00	<0.100	<2.00
		PREC						
		DUP1						
		Q19	01260172	01260172	01260172	01260173	01260172	01260173
		NSA AUTH						
BL#02	LCS 01	CONC	10.5	1.90	2.40	20.0	24.7	55.0
		PREC	105.0	74.4	95.6	80.0	98.8	110.0
		DUP1						
		Q19	01260172	01260172	01260172	01260173	01260173	01260173
		NSA AUTH						
BL#03	EXTERNAL QC 01	CONC	13.0	1.49	3.58	274	182	13600
		PREC						
		DUP1						
		Q19	01260172	01260172	01260172	01260173	01260173	01260173
		NSA AUTH						

NI Nickel
AG Silver
BA Barium

SE Selenium
ZN Zinc
FE Iron

JOB FILE: 89337

DATE: 22 J

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRIM PLANT -GLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054P0-92310103

RECEIPT DATE: 03 J

TYPE OF SAMPLE: SEDIMENT

COMPLETION DATE: 22 J

COLUMN.....	13	14
ANALYTE.....	32	33
RG/KC.....	MN	MO

SAMP # DESCRIPTION

89337	BULK 1,2,3-1	CONC	498	0.298
	5/30/00 10:30	WREC	103.0	86.4
	GB/SP CDF	DUPL	503	0.298
		QID	01260173	01260172
			HGA AUTH	
89338	BULK 1,2,3-2	CONC	473	0.300
	5/30/00 10:30	WREC		
	GB/SP CDF	DUPL		
		QID	01260173	01260172
			HGA AUTH	
89339	BULK 1,2,3-3	CONC	484	0.299
	5/30/00 10:30	WREC		
	GB/SP CDF	DUPL		
		QID	01260173	01260172
			HGA AUTH	
89340	BULK 4,5-1	CONC	443	0.298
	5/26/00 15:30	WREC		
	GB/SP CDF	DUPL		
		QID	01260173	01260172
			HGA AUTH	
89341	BULK 4,5-2	CONC	435	0.280
	5/26/00 15:30	WREC		
	GB/SP CDF	DUPL		
		QID	01260173	01260172
			HGA AUTH	
89342	BULK 4,5-3	CONC	447	0.298
	5/26/00 15:30	WREC		
	GB/SP CDF	DUPL		
		QID	01260173	01260172
			HGA AUTH	

MN Manganese

MO Molybdenum

JOB FILE: 09337

DATE: 22 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT -OLIM-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005485-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUN
COMPLETION DATE: 22 JUN

COLUMN.....	13	14
ANALYTE.....	32	33
MG/KG.....	MX	MO

SAMP # DESCRIPTION

BL#01	METHOD BLANK DT	CONC	<0.100	<0.100	
		PREC			
		DUPL			
		QID	01260173	01260172	
			NSA AUTO		
BL#02	LCS 01	CONC	9.90	4.50	
		PREC	99.4	90.0	
		DUPL			
		QID	01260173	01260172	
			NSA AUTO		
BL#03	EXTERNAL QC 01	CONC	452	0.299	
		PREC			
		DUPL			
		QID	01260173	01260172	
			NSA AUTO		

MX Manganese

MO Molybdenum

JOB FILE: 89343

DATE: 16 JUN 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRHT PLANT -CLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PO-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 02 JUN 0
COMPLETION DATE: 16 JUN 0

COLUMN.....	1	2	3	4	5	6		
ANALYTE.....	137	138	139	140	141	142		
UG/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254		
SAMP #	DESCRIPTION							RE
89343	BULK 1,2,3-1 5/30/00 10:30 GB/BP CDF	CONC <24.8 AREC 111.6 DUPL CIC 54830166	<24.8 54830166	<24.8 54830166	1261 54830166	<24.8 54830166	<24.8 54830166	
89344	BULK 1,2,3-2 5/30/00 10:30 GB/BP CDF	CONC <24.3 AREC DUPL CIC 54830166	<24.3 54830166	<24.3 54830166	1083 54830166	<24.3 54830166	<24.3 54830166	
89345	BULK 1,2,3-3 5/30/00 10:30 GB/BP CDF	CONC <24.8 AREC DUPL CIC 54830166	<24.8 54830166	<24.8 54830166	1140 54830166	<24.8 54830166	<24.8 54830166	
89346	BULK 4,5-1 5/26/00 15:30 GB/BP CDF	CONC <22.4 AREC DUPL CIC 54830166	<22.4 54830166	<22.4 54830166	1160 54830166	<22.4 54830166	<22.4 54830166	
89347	BULK 4,5-2 5/26/00 15:30 GB/BP CDF	CONC <23.0 AREC DUPL CIC 54830166	<23.0 54830166	<23.0 54830166	1378 54830166	<23.0 54830166	<23.0 54830166	
89348	BULK 4,5-3 5/26/00 15:30 GB/BP CDF	CONC <22.1 AREC DUPL CIC 54830166	<22.1 54830166	<22.1 54830166	1384 54830166	<22.1 54830166	<22.1 54830166	
PCB-1016	PCB-1016							
PCB-1232	PCB-1232							
PCB-1248	PCB-1248							
		PCB-1221	PCB-1221					
		PCB-1242	PCB-1242					
		PCB-1254	PCB-1254					

JOB FILE: 89343

DATE: 16 JUN 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT -CLIN-ESTES
 CHEN. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
 TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUN C
 COMPLETION DATE: 16 JUN C

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
UG/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP # DESCRIPTION RT

SAMP #	DESCRIPTION	RT
BLND1	METHOD BLANK 01	
	CONC <8.33	<8.33
	PREC	
	DUP1	
	Q10 54830166	54830166

SAMP #	DESCRIPTION	RT
BLND2	LCS 01	
	CONC 0.82	N/A
	PREC 98.4	
	DUP1	
	Q10 54830166	54830166

PCB-1016 PCB-1016
 PCB-1232 PCB-1232
 PCB-1248 PCB-1248

PCB-1221 PCB-1221
 PCB-1242 PCB-1242
 PCB-1254 PCB-1254

JOB FILE: 89343

DATE: 16 JUN 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT -OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92510183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUN 1
COMPLETION DATE: 16 JUN 1

COLUMN..... 7 8 9
ANALYTE..... 143 145 146
UG/KG..... PCB-1260 TeLXYL-S DCLBP

SAMP # DESCRIPTION

80

89343	BULK 1,2,3-1	CONC 47.9	78.4%	75.3%
	5/30/00 10:30	WREC 88.4	84.5	71.6
	GB/BP CDF	DUPL		
		QID 54830161	54830161	54830166
89344	BULK 1,2,3-2	CONC 66.8	83.1%	73.8%
	5/30/00 10:30	WREC		
	GB/BP CDF	DUPL		
		QID 54830161	54830161	54830166
89345	BULK 1,2,3-3	CONC 42.2	85.1%	77.4%
	5/30/00 10:30	WREC		
	GB/BP CDF	DUPL		
		QID 54830161	54830161	54830166
89346	BULK 4,5-1	CONC 39.5	75.5%	72.7%
	5/26/00 15:30	WREC		
	GB/BP CDF	DUPL		
		QID 54830161	54830161	54830166
89347	BULK 4,5-2	CONC 61.8	85.1%	76.9%
	5/26/00 15:30	WREC		
	GB/BP CDF	DUPL		
		QID 54830161	54830161	54830166
89348	BULK 4,5-3	CONC 47.3	85.9%	82.3%
	5/26/00 15:30	WREC		
	GB/BP CDF	DUPL		
		QID 54830161	54830161	54830166

PCB-1260 PCB-1260

TeLXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(60-150 MS

DCLBP Decachlorobiphenyl(Surrogate (60-150 MS))

JOB FILE: 89343

DATE: 16 JUN 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT -OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUN 1
COMPLETION DATE: 16 JUN 1

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
UG/KG.....	PCB-1260	Tc(XYL)-S	DCLBP

SAMP # DESCRIPTION

RE

BLND1	METHOD BLANK 01	CONC	<8.33		87.1%		81.1%	
		REC						
		DUPL						
		QID	54830161		54830161		54830166	
BLND2	LCS 01	CONC	0.87		77.4%		78.6%	
		REC	104.4					
		DUPL						
		QID	54830161		54830161		54830166	

PCB-1260 PCB-1260
DCLBP Decachlorobiphenyl(Surrogate (60-150 WB))

Tc(XYL)-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(60-150 WB

Job Description: <u>Green Bay Mobile Trmt Plant - Olin-Estes</u>		Job File Number: <u>89343</u>	
ECB Quality Assurance Corrective Action Form			
Analysis:	<u>PCB</u>	Date:	<u>15-June-00</u>
Analyst:	<u>A. Morrow</u>	Instrument:	<u>5890 #83 GC</u>
<p>Problem: <u>There is PCB's present, not sure if it is 1242 or 1248</u></p> <p>Sample Number(s) Affected: <u>89343-89348</u></p> <p>Recommended Corrective Action: <u>Report as 1242 and do further study.</u></p>			
<p>Corrective Action Taken By Analyst: <u>Same as above.</u></p> <p>Comments: <u>There will be further clean-up and analyses done to better quantitate and qualitatively identify sample contaminants.</u></p>			
Date Corrective Action Taken:		<u>15-June-00</u>	
Reviewed by:		<u><i>[Signature]</i></u>	

22-February-98

c:\calcaform.xls

INTERNAL QC DATA

Jobfile Number: 89343
Project: GREEN HAY MOBILE TRTMT PLANT -OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 02 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89343	89343	137	PCB-1016	111.6	77.2	36.4	54830166
89343	89343	143	PCB-1260	88.4	85.2	3.7	54830161
89343	89343	145	TclXYL-S	84.5	80.5	4.8	54830161
89343	89343	146	DCLBP	71.6	73.0	1.9	54830166

JOB FILE: 89749

DATE: 13 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 8) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT -CLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 02 JUN
COMPLETION DATE: 13 JUN

		COLUM..... 1		2		3		4		5		6	
		ANALYTE..... 290		296		296		297		303		304	
		UG/KG..... NAPHTH		ACENAP		ACENAP		FLUORE		PHENAN		ANTHAC	
SAMP #	DESCRIPTION												
89349	BULK 1,2,3-1	CONC	163		10.2		19.2		40.0		258		45.9
	5/30/00 10:30	WREC											
	GB/EP CDF	DUPL											
		DID	08890160		08890160		08890160		08890160		08890160		08890160
89350	BULK 1,2,3-2	CONC	195		11.2		22.0		44.9		275		50.7
	5/30/00 10:30	WREC											
	GB/EP CDF	DUPL											
		DID	08890160		08890160		08890160		08890160		08890160		08890160
89351	BULK 1,2,3-3	CONC	138		8.9		23.8		42.6		275		52.5
	5/30/00 10:30	WREC											
	GB/EP CDF	DUPL											
		DID	08890160		08890160		08890160		08890160		08890160		08890160
89352	BULK 4,5-1	CONC	157		9.8		15.2		38.5		213		35.8
	5/26/00 15:30	WREC											
	GB/EP CDF	DUPL											
		DID	08890160		08890160		08890160		08890160		08890160		08890160
89353	BULK 4,5-2	CONC	113		8.2		14.2		33.0		218		40.3
	5/26/00 15:30	WREC											
	GB/EP CDF	DUPL											
		DID	08890160		08890160		08890160		08890160		08890160		08890160
89354	BULK 4,5-3	CONC	104		9.0		14.2		37.0		229		43.4
	5/26/00 15:30	WREC	90.0		74.0		79.5		89.0		102.5		90.0
	GB/EP CDF	DUPL											
		DID	08890160		08890160		08890160		08890160		08890160		08890160

NAPETH Naphthalene
ACENAP Acenaphthene
PHENAN PhenanthreneACENAP Acenaphthylene
FLUORE Fluorene
ANTHAC Anthracene

JDR-FIL: 89569

DATE: 13 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 8) *****

JOB DESCRIPTION: GREEN BAY HOSTILE TRMT PLANT -CLIM-ESTES
CHRM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUN
COMPLETION DATE: 13 JUN

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	290	296	296	297	303	306
UG/KG.....	NAPHTH	ACENAP	ACENAP	FLUORE	PRENAP	ANTRAC

SAMP #	DESCRIPTION						
BLND1	METHOD BLANK 01	CONC	<10	<10	<10	<10	<10
		PREC					
		DUP1					
		QID	08890160	08890160	08890160	08890160	08890160
BLND2	LES 01	CONC	64.5	64.0	76.0	80.5	88.5
		PREC	64.5	64.0	76.0	80.5	88.5
		DUP1					
		QID	08890160	08890160	08890160	08890160	08890160

NAPHTH Naphthalene
ACENAP Acenaphthene
PRENAP Phenanthrene

ACENAP Acenaphthylene
FLUORE Fluorene
ANTRAC Anthracene

JOB FILE: B9349

DATE: 13 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 5) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT -OLIN-OSTES
CHEM. PRESERVATIVE:JOB NUMBER: 005409-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 02 JUN
COMPLETION DATE: 13 JUN

COLUMN..... 7			8	9	10	11	12
ANALYTE.....			306	307	309	310	313
UG/KG.....			FLANTH	PYRENE	CHRYSE	BAANTHR	BSPLANT
SAMP #	DESCRIPTION						
B9349	BULK 1,2,3-1	CONC 417	369	253	187	186	147
	5/30/00 10:30	WREC					
	GB/SP COF	DUPL					
		Q12 08890160	08890160	08890160	08890160	08890160	08890160
B9350	BULK 1,2,3-2	CONC 388	460	272	197	185	143
	5/30/00 10:30	WREC					
	GB/SP COF	DUPL					
		Q10 08890160	08890160	08890160	08890160	08890160	08890160
B9351	BULK 1,2,3-3	CONC 359	341	218	157	149	127
	5/30/00 10:30	WREC					
	GB/SP COF	DUPL					
		Q10 08890160	08890160	08890160	08890160	08890160	08890160
B9352	BULK 4,5-1	CONC 293	290	189	131	125	97.6
	5/26/00 15:30	WREC					
	GB/SP COF	DUPL					
		Q10 08890160	08890160	08890160	08890160	08890160	08890160
B9353	BULK 4,5-2	CONC 327	309	195	146	128	108
	5/26/00 15:30	WREC					
	GB/SP COF	DUPL					
		Q10 08890160	08890160	08890160	08890160	08890160	08890160
B9354	BULK 4,5-3	CONC 308	305	193	139	129	96.7
	5/26/00 15:30	WREC 132.8	130.0	118.5	101.0	106.5	80.0
	GB/SP COF	DUPL					
		Q10 08890160	08890160	08890160	08890160	08890160	08890160

FLANTH Fluoranthene
CHRYSE Chrysene
BSPLANT Benzo(b)FluoranthenePYRENE Pyrene
BAANTHR Benzo(a)Anthracene
BSPLANT Benzo(k)Fluoranthene

JOB FILE: 00369

DATE: 13 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 5) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRUTH PLANT -OLIM-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92330183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUN
COMPLETION DATE: 13 JUN

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	306	307	309	310	313	314
UG/KG.....	FLANTHE	PYRENE	CHRYSE	BAANTHE	BBFLANT	BEFLANT

SAMP # DESCRIPTION

SAMP #	DESCRIPTION	CONC	REC	DUP	DID	CONC	REC	DUP	DID	CONC	REC	DUP	DID	CONC	REC	DUP	DID
BL001	METHOD BLANK 01	<10				<10				<10				<10			
		306				307				309				310			
		DUPL				DUPL				DUPL				DUPL			
		DID	00890160			DID	00890160			DID	00890160			DID	00890160		
BL002	LCS 01	91.5				87.0				97.5				85.0			
		306				307				309				310			
		DUPL				DUPL				DUPL				DUPL			
		DID	00890160			DID	00890160			DID	00890160			DID	00890160		

FLANTHE Fluorethene
CHRYSE Chrysene
BBFLANT Benzo(b)Fluoranthene

PYRENE Pyrene
BAANTHE Benzo(a)Anthracene
BEFLANT Benzo(k)Fluoranthene

JOB FILE: 89549

DATE: 13 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 8) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT -OLIN-ESTES
CRM. PRESERVATIVE:JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 02 JUN
COMPLETION DATE: 13 JUN

COLUMN.....	13	14	15	16	17	18
ANALYTE.....	315	316	317	318	322	327
UG/KG.....	BAPYRE	1123PYR	DBANANT	B-SH1-PY	2HEKAPH	2F1BP-S

SAMP # DESCRIPTION

89349	BULK 1,2,3-1	CONC 203	174	25.4	188	162	79.0%
	5/30/00 10:30	WREC					
	GB/BP CDF	DUPH					
		QID 08890160	08890160	08890154	08890160	08890160	08890160
89350	BULK 1,2,3-2	CONC 207	176	30.6	185	174	76.2%
	5/30/00 10:30	WREC					
	GB/BP CDF	DUPH					
		QID 08890160	08890160	08890154	08890160	08890160	08890160
89351	BULK 1,2,3-3	CONC 168	143	31.7	165	137	72.2%
	5/30/00 10:30	WREC					
	GB/BP CDF	DUPH					
		QID 08890160	08890160	08890154	08890160	08890160	08890160
89352	BULK 4,5-1	CONC 145	118	26.9	150	154	74.8%
	5/26/00 15:30	WREC					
	GB/BP CDF	DUPH					
		QID 08890160	08890160	08890154	08890160	08890160	08890160
89353	BULK 4,5-2	CONC 152	125	27.5	148	118	67.7%
	5/26/00 15:30	WREC					
	GB/BP CDF	DUPH					
		QID 08890160	08890160	08890154	08890160	08890160	08890160
89354	BULK 4,5-3	CONC 150	122	25.3	149	119	65.9%
	5/26/00 15:30	WREC 101.0	105.5	95.0	100.5	97.5	71.7
	GB/BP CDF	DUPH					
		QID 08890160	08890160	08890154	08890160	08890160	08890160

BAPYRE Benzo(a)Pyrene

DBANANT Dibenzo(a,h)Anthracene

2HEKAPH 2-Methylnaphthalene

1123PYR Indeno(1,2,3-c,d)Pyrene

B-SH1-PY Benzo(b,h,i)Perylene

2F1BP-S 2-Fluorobiphenyl(Surrogate (33-115 S))

JOB Title: 07369

DATE: 13 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 8) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRIMT PLANT -OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUL
COMPLETION DATE: 13 JUL

COLUMN.....	13	14	15	16	17	18
ANALYTE.....	315	316	317	318	322	327
UG/KG.....	BAPYRE	112SPYR	DBANANT	B-GHI-PF	2MeNAPH	2FIBP-S

SAMP # DESCRIPTION

SAMP #	DESCRIPTION	CONC	13	14	15	16	17	18
BLAQ1	METHOD BLANK DT	CONC	<10	<10	<10	<10	<10	82.6%
		SRSC						
		DUP1						
		DTG	08890160	00090160	08890154	00090160	08890160	08890160
BLAQ2	LES 01	CONC	74.5	87.0	85.5	91.0	65.5	73.7%
		SRSC	74.5	87.0	85.5	91.0	65.5	
		DUP1						
		DTG	08890160	08890160	00090154	08890160	08890160	00090160

BAPYRE Benzo(a)Pyrene
DBANANT DiBenzo(A,H)Anthracene
2MeNAPH 2-Methylnaphthalene

112SPYR Indeno(1,2,3-c,d)Pyrene
B-GHI-PF Benzo(G,H,I)Perylene
2FIBP-S 2-Fluorobiphenyl(Surrogate (30-115 S))

JOB FILE: 09349

DATE: 13 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 7 OF 8) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRHT PLANT -OLIN-ESTER
CHEM. PRESERVATIVE:

JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUN
COMPLETION DATE: 13 JUN

COLUMN..... 19
ANALYTE..... 328
UG/KG..... PTERP-S

SAMP # DESCRIPTION

09349	BULK 1,2,3-1	CONC 77.7%	
	5/30/00 10:30	%REC	
	GB/BP CDF	DUP1	
		QID 08890160	
09350	BULK 1,2,3-2	CONC 92.5%	
	5/30/00 10:30	%REC	
	GB/BP CDF	DUP1	
		QID 08890160	
09351	BULK 1,2,3-3	CONC 78.4%	
	5/30/00 10:30	%REC	
	GB/BP CDF	DUP1	
		QID 08890160	
09352	BULK 4,5-1	CONC 78.9%	
	5/26/00 15:30	%REC	
	GB/BP CDF	DUP1	
		QID 08890160	
09353	BULK 4,5-2	CONC 78.4%	
	5/26/00 15:30	%REC	
	GB/BP CDF	DUP1	
		QID 08890160	
09354	BULK 4,5-3	CONC 80.5%	
	5/26/00 15:30	%REC 79.9	
	GB/BP CDF	DUP1	
		QID 08890160	

PTERP-S p-Terphenyl-D14(Surrogate (18-137 5))

JOB FILE: 89349

DATE: 13 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 8 OF 8) *****

JOB DESCRIPTION: GREEN BAY WASTE TREAT PLANT -CLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 02 JUN
COMPLETION DATE: 13 JUN

COLUMN..... 19
ANALYTE..... 326
UG/KG..... PTERP-S

SAMP # DESCRIPTION

BL#01	METHOD BLANK Q1	CONC	76.8%	
		%REC		
		DUP#		
		QID	08890160	

BL#02	LCS Q1	CONC	70.8%	
		%REC		
		DUP#		
		QID	08890160	

PTERP-S p-Terphenyl-014(surrogate (18-137 S))

INTERNAL QC DATA

Jobfile Number: 89349
 Project: GREEN BAY MOBILE TRTMT PLANT -OLIN-ESTES
 Account Number: 0054PD-92310183
 Date Received: 02 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89349	89354	290	NAPHTH	90.0	76.0	16.9	08890160
89349	89354	294	ACENAY	74.0	72.0	2.7	08890160
89349	89354	296	ACENAP	79.5	78.0	1.9	08890160
89349	89354	297	FLUORE	89.0	88.5	0.6	08890160
89349	89354	303	PHENAN	102.5	97.0	5.5	08890160
89349	89354	304	ANTRAC	90.0	90.0	0.0	08890160
89349	89354	306	FLANTHE	132.0	126.5	4.3	08890160
89349	89354	307	PYRENE	130.0	114.0	13.1	08890160
89349	89354	309	CHRYSE	118.5	105.0	12.1	08890160
89349	89354	310	BAANTHR	101.0	113.5	11.7	08890160
89349	89354	313	BBPLANT	106.5	98.5	7.8	08890160
89349	89354	314	BKPLANT	80.0	78.0	2.5	08890160
89349	89354	315	BAPYRE	101.0	93.5	7.7	08890160
89349	89354	316	I123PYR	106.5	103.0	3.3	08890160
89349	89354	317	DBAHANT	95.0	96.0	1.0	08890154
89349	89354	318	B-GHI-PY	100.5	95.0	5.6	08890160
89349	89354	322	2MeNAPH	97.5	83.0	16.1	08890160
89349	89354	327	2FlBP-S	71.7	69.8	2.7	08890160
89349	89354	328	PTERP-S	79.0	81.0	2.5	08890160

JOB FILE: -B9371

DATE: 22 JUN 01

ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 6)

JOB DESCRIPTION: GREEN BAY MOBILE TANK PLANT - OLIN-ESTES
CHL. PRESERVATIVE:

JOB NUMBER: 005490-92310103

RECEIPT DATE: 05 JUN 00

TYPE OF SAMPLE: SEDIMENT

COMPLETION DATE: 22 JUN 00

		COLUMN.....	1	2	3	4	5	6		
		ANALYTE.....	2	4	5	6	7	8		
		MG/KG.....	AS	CD	CR	CU	PB	HG		
SAMP #	DESCRIPTION								SDN	
89371	BULK 1,2,3	CONC	2.60	0.770	43.7	43.8	58.5	1.07	1	
	<75UM A 6/2/00	THREC	91.4	79.4	95.8	92.4	104.2	116.0		
	1300 GB/SP CDF	DUP1	2.80	0.950	47.1	47.9	63.4	1.08		
		OIO	01260172	01260172	01260172	01260172	01260172	04650168		
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH			
89372	BULK 1,2,3	CONC	3.30	0.800	50.4	43.9	56.1	0.999	2	
	<75UM B 6/2/00	THREC								
	1300 GB/SP CDF	DUP1								
		OIO	01260172	01260172	01260172	01260172	01260172	04650168		
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH			
89373	BULK 1,2,3	CONC	3.60	1.06	51.0	67.4	74.1	1.40	3	
	>75UM A 6/5/00	THREC								
	1400 GB/SP CDF	DUP1								
		OIO	01260172	01260172	01260172	01260172	01260172	04650168		
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH			
1374	BULK 1,2,3	CONC	3.50	1.16	50.3	70.0	79.5	1.48	4	
	>75UM B 6/5/00	THREC								
	1400 GB/SP CDF	DUP1								
		OIO	01260172	01260172	01260172	01260172	01260172	04650168		
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH			
BL#01	METHOD BLANK 01	CONC	<0.200	<0.020	<0.100	0.200	<0.100	<0.040	5	
		THREC								
		DUP1								
		OIO	01260172	01260172	01260172	01260172	01260172	04650168		
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH			
BL#02	LCS 01	CONC	4.30	2.40	9.90	10.2	5.60	0.0768	6	
		THREC	86.0	96.4	99.1	102.0	116.8	102.4		
		DUP1								
		OIO	01260172	01260172	01260172	01260172	01260172	04650168		
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH			
AS	Arsenic			CD	Cadmium					
CR	Chromium			CU	Copper					
PB	Lead			HG	Mercury					

JOB FILE: -89371

DATE: 22 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIM-ESTES

JOB NUMBER: 005490-92310183

RECEIPT DATE: 05 JUN

HEM. PRESERVATIVE:

TYPE OF SAMPLE: SEDIMENT

COMPLETION DATE: 22 JUN

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
MG/KG.....	AS	CD	CR	CU	PB	HG

SAMP # DESCRIPTION

RE

BL#03	EXTERNAL SC 01	CONC	76.0	32.2	12.6	67.5	1159	0.050
		PREC						
		DUP						
		QED	01260172	01260172	01260172	01260172	01260172	04650160
			ASA AUTH	ASA AUTH	ASA AUTH	ASA AUTH		

AS Arsenic
CR Chromium
PB Lead

CD Cadmium
CU Copper
HG Mercury

JGA FILE: 89371

DATE: 22 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE TMT PLANT - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 05 JUN
COMPLETION DATE: 22 JUN

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	30
MG/KG.....	NI	SE	AG	ZN	BA	FE

SAMP # DESCRIPTION

SAMP #	DESCRIPTION	CONC	18.8	0.800	0.400	155	75.3	13900	
89371	BULK 1,2,3	CONC	18.8	0.800	0.400	155	75.3	13900	
	<75UM A 6/2/00	SRUC	96.2	83.6	82.6	99.8	110.4	115.0	
	1300 GB/SP CDF	DUP1	25.0	0.900	0.400	140	79.2	14300	
		QID	01260172	01260172	01260172	01260173	01260172	01260173	
		HGA AUTH			HGA AUTH				
89372	BULK 1,2,3	CONC	20.9	1.10	0.500	155	82.6	17100	
	<75UM B 6/2/00	SRUC							
	1300 GB/SP CDF	DUP1							
		QID	01260172	01260172	01260172	01260173	01260172	01260173	
		HGA AUTH			HGA AUTH				
89373	BULK 1,2,3	CONC	16.0	1.40	0.300	130	57.9	10900	
	<75UM A 6/5/00	SRUC							
	1400 GB/SP CDF	DUP1							
		QID	01260172	01260172	01260172	01260173	01260172	01260173	
		HGA AUTH			HGA AUTH				
7374	BULK 1,2,3	CONC	18.4	1.70	0.380	161	57.4	10600	4
	<75UM B 6/5/00	SRUC							
	1400 GB/SP CDF	DUP1							
		QID	01260172	01260172	01260172	01260173	01260172	01260173	
		HGA AUTH			HGA AUTH				
BL001	METHOD BLANK 01	CONC	<0.100	<0.200	<0.100	<1.00	<0.100	<2.00	5
		SRUC							
		DUP1							
		QID	01260172	01260172	01260172	01260173	01260172	01260173	
		HGA AUTH			HGA AUTH				
BL002	LCS 01	CONC	10.5	1.90	2.40	20.0	24.7	55.0	6
		SRUC	105.0	74.4	95.8	80.0	98.0	110.0	
		DUP1							
		QID	01260172	01260172	01260172	01260173	01260172	01260173	
		HGA AUTH			HGA AUTH				
NI	Nickel			SE	Selenium				
AG	Silver			ZN	Zinc				
BA	Barium			FE	Iron				

JOB FILE: 89379

DATE: 22 JUN 01

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 6) *****

JOB DESCRIPTION: GREEN HAY MOBILE TRMT PLANT - OLIN-ESTES
 PRESERVATIVE:

JOB NUMBER: 005490-92310583
 TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 05 JUN 01
 COMPLETION DATE: 22 JUN 01

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	29	30
MOVED.....	NI	SE	AG	ZN	BA	FE

SAMP #	DESCRIPTION							ROL
BLK03	EXTERNAL QC Q1	CONC	13.0	1.49	3.56	274	182	13650
		SRCC						
		DUP1						
		QID	01260172	01260172	01260172	01260173	01260172	01260173
		HGA AUTH			HGA AUTH			

NI	Nickel	SE	Selenium
AG	Silver	ZN	Zinc
BA	Barium	FE	Iron

JOB FILE: 89371

DATE: 22 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 6) *****

JOB DESCRIPTION: GREEN DAY MOBILE TMT PLANT - OLIN-ESTES
JEM. PRESERVATIVE:JOB NUMBER: 005499-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 05 JUN
COMPLETION DATE: 22 JUN

COLUMN.....	13	14
ANALYTE.....	32	33
MS/XG.....	MM	MO

SAMP # DESCRIPTION

RT

89371	BULK 1,2,3	CONC	438	0.200	
	<75UM A 6/2/00	WREC	106.0	85.2	
	1300 GB/EP CDF	DUP1	439	0.300	
		QID	01260173	01260172	
		MSA AUTH			
89372	BULK 1,2,3	CONC	454	0.400	
	<75UM B 6/2/00	WREC			
	1300 GB/EP CDF	DUP1			
		QID	01260173	01260172	
		MSA AUTH			
89373	BULK 1,2,3	CONC	758	0.400	
	>75UM A 6/5/00	WREC			
	1400 GB/EP CDF	DUP1			
		QID	01260173	01260172	
		MSA AUTH			
89374	BULK 1,2,3	CONC	908	0.400	
	>75UM B 6/5/00	WREC			
	1400 GB/EP CDF	DUP1			
		QID	01260173	01260172	
		MSA AUTH			
BL#01	METHOD BLANK Q1	CONC	<0.100	<0.100	
		WREC			
		DUP1			
		QID	01260173	01260172	
		MSA AUTH			
BL#02	LCS Q1	CONC	9.98	4.50	
		WREC	99.4	98.0	
		DUP1			
		QID	01260173	01260172	
		MSA AUTH			

MM Manganese

MO Molybdenum

JOB FILE: 09371

DATE: 22 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
CHEN, PRESERVATIVE:

JOB NUMBER: 00549D-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 05 JUN
COMPLETION DATE: 22 JUN

COLUMN..... 13 14
ANALYTE..... 32 33
MG/KG..... RM RD

SAMP # DESCRIPTION

PC

BLN03	EXTERNAL UC 01	CONC	452	0.299
		SPEC		
		DUP1		
		CID	01260173	01260172
		REA AUTH		

RM Manganese

RD Molybdenum

JOB FILE: 89375

DATE: 15 JUN 1

Handwritten: 89375

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE TANT PLANT - OLIN-ESTES
 CEM. PRESERVATIVE:

JOB NUMBER: 005490-92310183
 TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 05 JUN 1
 COMPLETION DATE: 15 JUN 1

COLUMN.....	1	2	3
ANALYTE.....	86	100	104
MG/KG.....	TOC	O&G	TRPH

SAMP # DESCRIPTION

RE

89375	BULK 1,2,3 <75UM A 6/2/00 1300 GB/PP CDF	CONC	41600	240 B	140 B
		WREC			
		DUPL			
		DID	10040160	55990165	55990167
89376	BULK 1,2,3 <75UM B 6/2/00 1300 GB/PP CDF	CONC	41000	170 B	110 B
		WREC			
		DUPL			
		DID	10040160	55990165	55990167
89377	BULK 1,2,3 >75UM A 6/5/00 1400 GB/PP CDF	CONC	34100	1080 B	630 B
		WREC			
		DUPL			
		DID	10040160	55990165	55990167
89378	BULK 1,2,3 >75UM B 6/5/00 1400 GB/PP CDF	CONC	43700	980 B	420 B
		WREC		85.1	98.9
		DUPL	38500		
		DID	10040160	55990165	55990167
BLA01	METHOD BLANK 01	CONC	<100	66	80
		WREC			
		DUPL			
		DID	10040160	55990165	55990167
BLA02	LCS 01	CONC	10000	970	962
		WREC	100.0		
		DUPL			
		DID	10040160	55990165	55990167

TOC Total Organic Carbon
 TRPH Total Recoverable Petroleum Hydrocarbons

O&G Oil and Grease

JOB FILE: 89375

DATE: 15 JUN 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN RAY MOBILE TRMT PLANT - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 05 JUN 1
COMPLETION DATE: 15 JUN 1

COLUMN.....	1	2	3
ANALYTE.....	B6	106	104
MG/KG.....	TOC	D&G	TRPH

SAMP # DESCRIPTION

RT

BL403	EXTERNAL GC 01	CONC 21155	N/A	N/A
		BREC		
		DUP1		
		QID 10040160	55990165	55990167

TOC Total Organic Carbon

D&G Oil and Grease

TRPH Total Recoverable Petroleum Hydrocarbons

INTERNAL QC DATA

Jobfile Number: 89375
Project: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
Account Number: 00549D-92310183
Date Received: 05 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89375	89378	100	O&G	85.1	78.8	7.7	55990165
89375	89378	104	TRPH	90.9	89.0	2.1	55990167

JOB FILE: 89379

DATE: 16 JUN 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
CHEN. PRESERVATIVE:JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 05 JUN 0
COMPLETION DATE: 16 JUN 0

COLUMN.....	1	2	3	4	5	6	
ANALYTE.....	137	138	139	140	141	142	
UG/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	
SAMP #	DESCRIPTION						RO
89379	BULK 1,2,3 <75UM A 6/2/00 1500 GR/BP CDF	CONC <25.2 AREC DUPL DID 54830166	<25.2 54830166	<25.2 54830166	1095 54830166	<25.2 54830166	<25.2 54830166
89380	BULK 1,2,3 <75UM B 6/2/00 1500 GR/BP CDF	CONC <23.7 AREC DUPL DID 54830166	<23.7 54830166	<23.7 54830166	845 54830166	<23.7 54830166	<23.4 54830166
89381	BULK 1,2,3 >75UM A 6/5/00 1400 GR/BP CDF	CONC <29.5 AREC DUPL DID 54830166	<29.5 54830166	<29.5 54830166	1662 54830166	<29.5 54830166	<29.5 54830166
89382	BULK 1,2,3 >75UM B 6/5/00 1400 GR/BP CDF	CONC <29.9 AREC DUPL DID 54830166	<29.9 54830166	<29.9 54830166	1823 54830166	<29.9 54830166	<29.9 54830166
BL#01	METHOD BLANK 01	CONC <8.33 AREC DUPL DID 54830166	<8.33 54830166	<8.33 54830166	<8.33 54830166	<8.33 54830166	<8.33 54830166
BL#02	LCS 01	CONC 0.82 AREC 98.4 DUPL DID 54830166	N/A 54830166	N/A 54830166	N/A 54830166	N/A 54830166	N/A 54830166
PCB-1016	PCB-1016		PCB-1221	PCB-1221			
PCB-1232	PCB-1232		PCB-1242	PCB-1242			
PCB-1248	PCB-1248		PCB-1254	PCB-1254			

DATE: 16 JUN 68

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

RECEIPT DATE: 05 JUN C
COMPLETION DATE: 16 JUN C

8	9
145	146
TELXYL-8	OCLBP

85

82.3%	79.2%
54830166	54830166

89,13	82,13
54830166	54830166

81,7%	75,8%
54830166	54830166

86.2%	74.1%
54830166	54830166

87.1%	81.1%
54830166	54830166

77.4%	78.6%
54830166	54830166

PCB-1260	PCB-1260	TCX11-S	2,4,5,6-Tetrachloro-m-xylene(Surrogate(60-150 W))
DCLBP	Decachlorobiphenyl(Surrogate (60-150 W))		

Job Description: <u>Green Bay Mobile Trmt Plant - Olin-Estes</u>		Job File Number: <u>89379</u>	
ECB Quality Assurance Corrective Action Form			
Analysis:	<u>PCB</u>	Date:	<u>15-June-00</u>
Analyst:	<u>A. Morrow</u>	Instrument:	<u>5890 #83 GC</u>
<p>Problem: <u>There is PCB's present, not sure if it is 1242 or 1248</u></p> <p>Sample Number(s) Affected: <u>89379-89382</u></p> <p>Recommended Corrective Action: <u>Report as 1242 and do further study.</u></p> <p>Corrective Action Taken By Analyst: <u>Same as above.</u></p> <p>Comments: <u>There will be further clean-up and analyses done to better quantitate and qualitatively identify sample contaminants.</u></p>			
Date Corrective Action Taken:		<u>15-June-00</u>	
Reviewed by:		<u><i>[Signature]</i></u>	

22-February-96

ecb/qc/corform.xls

JOB FILE: 89383

DATE: 14 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 05 JUL
COMPLETION DATE: 19 JUL

COLUMN.....		1	2	3	4	5	6
ANALYTE.....		292	294	296	297	303	304
UG/KG.....		MAPHTH	ACENAP	ACENAP	FLUORE	PHENAN	ANTRAC
SAMP #	DESCRIPTION						
89383	BULK 1,2,3	CONC 72.9	<20	10.4	26.0	166	27.0
	<75UM A 6/2/00	3REC					
	1300 GB/SP CDF	DUPL					
		QID 08890160	08890160	08890160	08890160	08890160	08890160
89384	BULK 1,2,3	CONC 99.0	<19	12.4	29.5	186	31.4
	<75UM B 6/2/00	3REC					
	1300 GB/SP CDF	DUPL					
		QID 08890160	08890160	08890160	08890160	08890160	08890160
89385	BULK 1,2,3	CONC 352	43.2	60.7	118	886	202
	>75UM A 6/5/00	3REC					
	1400 GB/SP CDF	DUPL					
		QID 08890160	08890160	08890160	08890160	08890160	08890160
89386	BULK 1,2,3	CONC 382	39.2	63.0	128	868	185
	>75UM B 6/5/00	3REC					
	1400 GB/SP CDF	DUPL					
		QID 08890160	08890160	08890160	08890160	08890160	08890160
BL#01	METHOD BLANK 01	CONC <10	<10	<10	<10	<10	<10
		3REC					
		DUPL					
		QID 08890160	08890160	08890160	08890160	08890160	08890160
BL#02	LCS 01	CONC 64.5	64.0	76.0	80.5	88.5	85.5
		3REC 64.5	64.0	76.0	80.5	88.5	85.5
		DUPL					
		QID 08890160	08890160	08890160	08890160	08890160	08890160

MAPHTH Naphthalene
ACENAP Acenaphthene
PHENAN PhenanthreneACENAP Acenaphthylene
FLUORE Fluorene
ANTRAC Anthracene

JOB FILE: 09303

DATE: 14 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 005490-92510103
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 05 JUL
COMPLETION DATE: 19 JUL

			COLUMN.....	7	8	9	10	11	12
			ANALYTE.....	306	307	309	310	313	314
			UO/KG.....	FLANTHE	PYRENE	CHRYSE	BAANTHR	BBFLANT	BBFLANT
SAMP #	DESCRIPTION								
09303	BULK 1,2,3	CONC	248	222	141	90.9	105	68.9	
	<75UM A 6/2/00	WREC							
	1300 GB/EP CDF	DUP							
		QID	08890160	08890160	08890160	08890160	08890160	08890160	
09304	BULK 1,2,3	CONC	273	258	163	105	120	85.8	
	<75UM B 6/2/00	WREC							
	1300 GB/EP CDF	DUP							
		QID	08890160	08890160	08890160	08890160	08890160	08890160	
09305	BULK 1,2,3	CONC	1200	1420	875	812	504	473	
	>75UM A 6/5/00	WREC							
	1400 GB/EP CDF	DUP							
		QID	08890160	08890160	08890160	08890160	08890160	08890160	
09306	BULK 1,2,3	CONC	1060	1360	825	730	546	454	
	>75UM B 6/5/00	WREC							
	1400 GB/EP CDF	DUP							
		QID	08890160	08890160	08890160	08890160	08890160	08890160	
BL#01	METHOD BLANK 01	CONC	<10	<10	<10	<10	<10	<10	
		WREC							
		DUP							
		QID	08890160	08890160	08890160	08890160	08890160	08890160	
BL#02	LCS 01	CONC	91.5	87.0	97.5	85.0	78.5	88.0	
		WREC	91.5	87.0	97.5	85.0	78.5	88.0	
		DUP							
		QID	08890160	08890160	08890160	08890160	08890160	08890160	

FLANTHE Fluoranthene
CHRYSE Chrysene
BBFLANT Benzo(b)Fluoranthene

PYRENE Pyrene
BAANTHR Benzo(a)Anthracene
BBFLANT Benzo(k)Fluoranthene

JOB FILE: 09385

DATE: 16 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005490-92310103
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 05 JUL
COMPLETION DATE: 19 JUL

COLUMN	13	14	15	16	17	18
ANALYTE	315	316	317	318	322	327
UG/KG	BAPYRE	1123PYR	DBAHANT	B-GH1-PY	2-MeNAPH	2-FluBP-S

SAMP # DESCRIPTION

89383	BULK 1,2,3 <75UM A 6/2/00 1300 GR/8P CDF	CONC 99.9 3REC DUPL DID 08890160	90.9 08890160	19.4 08890160	105 08890160	86.9 08890160	65.2% 08890160
89384	BULK 1,2,3 <75UM B 6/2/00 1300 GR/8P CDF	CONC 117 3REC DUPL DID 08890160	108 08890160	20.0 08890160	122 08890160	111 08890160	75.9% 08890160
89385	BULK 1,2,3 >75UM A 6/5/00 1400 GR/8P CDF	CONC 813 3REC DUPL DID 08890160	553 08890160	114 08890160	611 08890160	411 08890160	73.9% 08890160
89386	BULK 1,2,3 >75UM B 6/5/00 1400 GR/8P CDF	CONC 725 3REC DUPL DID 08890160	527 08890160	114 08890160	617 08890160	441 08890160	74.3% 08890160
BL001	METHOD BLANK D1	CONC <10 3REC DUPL DID 08890160	<10 08890160	<10 08890160	<10 08890160	<10 08890160	82.6% 08890160
BL002	LCS D1	CONC 74.5 3REC 74.5 DUPL DID 08890160	87.0 87.0 08890160	85.5 85.5 08890160	91.0 91.0 08890160	65.5 65.5 08890160	73.7% 73.7 08890160

BAPYRE Benzo(a)Pyrene
DBAHANT Dibenz(a,h)Anthracene
2MeNAP4 2-Methylnaphthalene

1123PYR Indeno(1,2,3-c,d)Pyrene
B-GH1-PY Benzo(g,h,i)Perylene
2FluBP-S 2-Fluorobiphenyl(Surrogate (30-115 S))

JOB FILE: 89383

DATE: 14 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
 CHSM. PRESERVATIVE:

JOB NUMBER: 005490-92310183
 TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 05 JUN
 COMPLETION DATE: 19 JUN

COLUMN..... 19
 ANALYTE..... 328
 UG/KG..... PTEP-S

SAMP # DESCRIPTION

89383	BULK 1,2,3	CONC	79.6%	
	<75UM A 6/2/00	%REC		
	1300 GB/SP CDF	DUPL		
		QID	08890160	
89384	BULK 1,2,3	CONC	78.6%	
	<75UM B 6/2/00	%REC		
	1300 GB/SP CDF	DUPL		
		QID	08890160	
89385	BULK 1,2,3	CONC	86.0%	
	>75UM A 6/5/00	%REC		
	1400 GB/SP CDF	DUPL		
		QID	08890160	
89386	BULK 1,2,3	CONC	86.9%	
	>75UM B 6/5/00	%REC		
	1400 GB/SP CDF	DUPL		
		QID	08890160	
BL#01	METACO BLANK 01	CONC	76.6%	
		%REC		
		DUPL		
		QID	08890160	
BL#02	LCS 01	CONC	70.8%	
		%REC	70.8	
		DUPL		
		QID	08890160	

PTERP-S: p-Terphenyl-D14(Surrogate (18-117 S))

1/20
8/20/00

JOB FILE: 09565

DATE: 03 AUG 00

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 3) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLT - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310103
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 26 JUN 00
COMPLETION DATE: 3 AUG 00

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
RG/KG.....	AS	CD	CR	CJ	PR	RG

SAMP #	DESCRIPTION	CONC	2.10	0.609	28.9	27.3	42.9	1.08	
09565	C48 BULK	3REC	94.6	92.4	87.8	80.8	98.0	112.3	
	6/21/00 1100	DUP	2.20	0.609	28.8	27.4	42.4	1.07	
	GB NW DHP CELL 4	DID	01260215	01260215	01260215	01260215	01230209	04650189	
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
09566	C48 BULK	CONC	2.30	0.600	30.7	30.3	44.5	1.09	2
	6/21/00 1100	3REC							
	GB NW DHP CELL 4	DUP							
		DID	01260215	01260215	01260215	01260215	01230209	04650189	
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
BLND1	METHOD BLANK D1	CONC	<0.200	<0.020	<0.100	0.600	<1.00	<0.040	3
		3REC							
		DUP							
		DID	01260215	01260215	01260215	01260215	01230209	04650189	
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
BLND2	LCS D1	CONC	9.40	4.84	19.0	17.4	21.0	0.077	4
		3REC	93.7	96.0	95.0	87.0	105.0	102.1	
		DUP							
		DID	01260215	01260215	01260215	01260215	01230209	04650189	
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
BLND3	EXTERNAL GC D1	CONC	80.3	37.1	22.5	86.9	1140	0.058	5
		3REC							
		DUP							
		DID	01260215	01260215	01260215	01260215	01230209	04650189	
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		

AS	Arsenic	CD	Cadmium
CR	Chromium	CJ	Copper
PR	Lead	RG	Mercury

JOB FILE: 89515

DATE: 05 AUG

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 3) *****

JOB DESCRIPTION: GREEN BAY MOBILE TREAT PLT - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PO-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 26 JUN 1
COMPLETION DATE: 3 AUG 1

COLUMN.....	7	8	9	10	11	12		
ANALYTE.....	9	10	11	13	25	30		
MG/KG.....	NI	SE	AG	ZN	BA	FE		
SAMP #	DESCRIPTION						SC	
89505	CAB BULKA	CONC	10.3	0.499	0.299	74.0	40.5	7550
	6/21/00 1100	PREC	96.4	106.6	17.6	90.8	95.6	160.0
	GD NW DMP CELL 4	DUPL	10.1	0.499	0.399	74.5	40.5	7540
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			
89586	CAB BULKS	CONC	11.3	0.300	0.700	78.2	43.2	94.8
	6/21/00 1100	PREC						
	GD NW DMP CELL 4	DUPL						
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			
BL#01	METHOD BLANK 01	CONC	1.20	<0.200	<0.100	<1.00	<0.100	<2.00
		PREC						
		DUPL						
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			
BL#02	LCS 01	CONC	21.6	4.10	4.50	49.9	51.0	110
		PREC	108.0	82.8	90.8	99.8	102.0	110.0
		DUPL						
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			
BL#03	EXTERNAL QC 01	CONC	16.6	1.69	4.49	282	195	24900
		PREC						
		DUPL						
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			
NI	Nickel			SE	Selenium			
AG	Silver			ZN	Zinc			
BA	Barium			FE	Iron			

JOB FILE: 09585

DATE: 03 AUG

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 3) *****

JOB DESCRIPTION: GREEN RAY MOBILE TRMT PLT - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 26 JUN 0
COMPLETION DATE: 3 AUG 0

COLUMN..... 13 14
ANALYTE..... 32 33
MO/EG..... MN MO

SAMP #	DESCRIPTION				RD
89585	C48 BULK	CONC	134	0.299	
	6/21/00 1100	%REC	101.6	105.4	
	OB NW DMP CELLS	DUP1	133	0.299	
		QID	01230209	01260215	
		HSA AUTH			
89586	C48 BULK	CONC	146	0.400	7
	6/21/00 1100	%REC			
	OB NW DMP CELLS	DUP1			
		QID	01230209	01260215	
		HSA AUTH			
BLW01	METHOD BLANK 01	CONC	<0.100	<0.100	3
		%REC			
		DUP1			
		QID	01230209	01260215	
		HSA AUTH			
BLW02	LCD 01	CONC	19.6	5.00	4
		%REC	98.0	103.0	
		DUP1			
		QID	01230209	01260215	
		HSA AUTH			
BLW03	EXTERNAL QC 01	CONC	492	0.997	5
		%REC			
		DUP1			
		QID	01230209	01260215	
		HSA AUTH			
MN	Manganese				
MO	Molybdenum				

JOB FILE: 89.87

DATE: 13 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

DESCRIPTION: GREEN BAY MOBILE TRHT PLT - OLIN-ESTES
 PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
 TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 26 JUN
 COMPLETION DATE: 13 JUL

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
UG/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254
SAMP #	DESCRIPTION					
89507	C48 BULK1	CONC <12.7	<12.7	<12.7	<12.7	3787
	6/21/00 1100	SRUC				
	8G MW DMP CELLS	DUPL				
	OID	54830182	54830182	54830182	54830182	54830182
89508	C48 BULK3	CONC <12.7	<12.7	<12.7	<12.7	3722
	6/21/00 1100	SRUC				
	8G MW DMP CELLS	DUPL				
	OID	54830182	54830182	54830182	54830182	54830182
BLW01	METHOD BLANK 01	CONC <8.3	<8.3	<8.3	<8.3	<8.3
		SRUC				
		DUPL				
	OID	54830182	54830182	54830182	54830182	54830182
BLW02	LCS 01	CONC 0.97	N/A	N/A	N/A	N/A
		SRUC 116.0				
		DUPL				
	OID	54830182	54830182	54830182	54830182	54830182
PCB-1016	PCB-1016		PCB-1221	PCB-1221		
PCB-1232	PCB-1232		PCB-1242	PCB-1242		
PCB-1248	PCB-1248		PCB-1254	PCB-1254		

JOB FILE: 85587

DATE: 13 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLT - CLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 26 JUN
COMPLETION DATE: 13 JUL

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
UG/KG.....	PCB-1260	1c1XYL-S	DCLRP

SAMP # DESCRIPTION

89587	CAR BULK1	CONC	41.9		95.4%		82.3%	
	6/21/00 1100	ANAL						
	96 NW DWP CELL4	DUP1						
		QID	54830182		54830182		54830182	
89588	CAR BULK2	CONC	36.1		91.2%		84.1%	
	6/21/00 1100	ANAL						
	96 NW DWP CELL4	DUP1						
		QID	54830182		54830182		54830182	
BL001	METHOD BLANK 01	CONC	<0.3		89.5%		90.9%	
		ANAL						
		DUP1						
		QID	54830182		54830182		54830182	
BL002	LCB 01	CONC	1.03		96.7%		95.6%	
		ANAL	124.0					
		DUP1						
		QID	54830182		54830182		54830182	

PCB-1260 PCB-1260

DCLRP Decachlorobiphenyl(Surrogate (60-150 MS))

1c1XYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(60-150 MS

FILE# 09589

DATE: 11 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 1) *****

JOB DESCRIPTION: GREEN BAY MOBILE TATHT PLT - GLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92590183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 26 JUL
COMPLETION DATE: 11 JUL

COLUMN.....	1	2	3	4
ANALYTE.....	86	95	100	104
MG/KG.....	TOC	TVS	O&G	TRPH

SAMP # DESCRIPTION

09589	D4B BULK A	CONC	26100	<4	230	190
	6/21/00 1100	AREC				
	03 MW DMP CELL4	DUPL	25700			
		QID	60040187	10150154	55990189	55990191
09590	D4B BULK B	CONC	28500	<4	210	180
	6/21/00 1100	AREC			88.9	88.2
	03 MW DMP CELL4	DUPL				
		QID	60040187	10150154	55990189	55990191
BL#01	MET#00 BLANK 01	CONC	<100	<4	<35	0 J
		AREC				
		DUPL				
		QID	60040187	10150154	55990189	55990191
BL#02	LCS 01	CONC	8640	N/A	932	948
		AREC	94.6		91.7	93.3
		DUPL				
		QID	60040187	10150154	55990189	55990191
BL#03	EXTERNAL QC 01	CONC	20700	N/A	N/A	N/A
		AREC				
		DUPL				
		QID	60040187	10150154	55990189	55990191

TOC Total Organic Carbon
O&G Oil and Grease

TVS Total Volatile Solids
TRPH Total Recoverable Petroleum Hydrocarbons

INTERNAL QC DATA

Jobfile Number: 89589
Project: GREEN BAY MOBILE TRMT PLT - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 26 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89589	89590	100	O&G	88.9	87.7	1.4	55990189
89589	89590	104	TRPH	88.2	86.9	1.5	55990191
89589	BL#02	100	O&G	91.7	91.2	0.5	55990189
89589	BL#02	104	TRPH	93.3	93.0	0.3	55990191

KE
11/01/03
2/3 FILL: 89591

DATE: 10 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRINT PL - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 26 JUN
COMPLETION DATE: 10 JUL

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	290	294	296	297	303	304
UO/KO.....	NAPHTH	ACENAP	ACENAP	FLUORE	PHENAN	ANTRAC

SAMP # DESCRIPTION

89591	C48 BULK A	CONC	121	11.1	34.2	49.8	219	43.8
	6/21/00 1100	%REC						
	GB NW SMP CELL4	DUPL						
		GID	08890181	08890181	08890181	08890181	08890181	08890181
89592	C48 BULK B	CONC	126	17.3	48.3	57.0	238	49.3
	6/21/00 1100	%REC	40.0	58.5	62.5	77.5		87.5
	GB NW SMP CELL4	DUPL						
		GID	08890181	08890181	08890181	08890181	08890181	08890181
BLK01	METHOD BLANK 01	CONC	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3
		%REC						
		DUPL						
		GID	08890181	08890181	08890181	08890181	08890181	08890181
BLK02	LES 01	CONC	40.0	43.7	49.0	52.0	55.7	54.7
		%REC	60.0	65.5	73.5	78.0	80.5	82.0
		DUPL						
		GID	08890181	08890181	08890181	08890181	08890181	08890181

NAPHTH Naphthalene
ACENAP Acenaphthene
PHENAN Phenanthrene

ACENAP Acenaphthylene
FLUORE Fluorene
ANTRAC Anthracene

JOB FILE: 09591

DATE: 10 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 4) *****

JOB DESCRIPTION: GREEN RAY MOBILE TRINT PLT - OLIN-ESTES
CHON. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 26 JUN
COMPLETION DATE: 10 JUN

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	306	307	309	310	313	314
UG/KG.....	FLANTH	PIRENE	CHRYSE	BAANTHR	BFPLANT	BFPLANT

SAMP # DESCRIPTION

09591	C48 BULK A	CONC	263	248	133	110	72.5	69.5
	6/21/00 1100	SMC						
	SR NW SMP CELL4	DUP						
		DID	08890181	08890181	08890181	08890181	08890181	08890181
09592	C48 BULK B	CONC	251	278	163	140	97.7	77.3
	6/21/00 1100	SMC			73.5	85.0	81.5	55.5
	SR NW SMP CELL4	DUP						
		DID	08890181	08890181	08890181	08890181	08890181	08890181
BL#01	METHOD BLANK D1	CONC	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3
		SMC						
		DUP						
		DID	08890181	08890181	08890181	08890181	08890181	08890181
BL#02	LCS 01	CONC	62.0	54.7	65.0	60.7	32.7	61.0
		SMC	93.0	82.0	97.5	91.0	79.0	91.5
		DUP						
		DID	08890181	08890181	08890181	08890181	08890181	08890181

FLANTH Fluoranthene
CHRYSE Chrysene
BFPLANT Benzo(b)Fluoranthene

PIRENE Pyrene
BAANTHR Benzo(a)Anthracene
BFPLANT Benzo(k)Fluoranthene

JOB FILE: 89591

DATE: 10 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TETRA PLT - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054P0-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 26 JUN
COMPLETION DATE: 10 JUL

COLUMN.....	13	14	15	16	17	18
ANALYTE.....	315	316	317	318	322	327
UD/XC.....	BAPYRE	1123PYR	DBAHANT	B-GN-PY	2MeNAPH	2F1BP-S

SAMP # DESCRIPTION

89591	C4B BULK A 6/21/00 1100 GB NW OHP CELLA	CONC	102	75.0	12.6	87.1	145	68.4%
		SREC						
		DUP1						
		DID	08890181	08890181	08890181	08890181	08890181	08890181
89592	C4B BULK B 6/21/00 1100 GB NW OHP CELLA	CONC	135	89.0	18.3	104	146	67.0%
		SREC	62.0	79.5	87.5	76.0	68.0	65.1
		DUP1						
		DID	08890181	08890181	08890181	08890181	08890181	08890181
BL#01	METHOD BLANK 01	CONC	<3.3	<3.3	<3.3	<3.3	<3.3	78.1%
		SREC						
		DUP1						
		DID	08890181	08890181	08890181	08890181	08890181	08890181
BL#02	LCS 01	CONC	51.3	54.3	57.7	65.7	42.7	70.6%
		SREC	77.0	81.5	86.5	98.5	64.0	
		DUP1						
		DID	08890181	08890181	08890181	08890181	08890181	08890181

BAPYRE Benzo(a)Pyrene

DBAHANT Dibenzo(a,h)Anthracene

2MeNAPH 2-Methylnaphthalene

1123PYR Indeno(1,2,3-c,d)Pyrene

B-GN-PY Benzo(g,h,i)Perylene

2F1BP-S 2-Fluorobiphenyl(Surrogate (30-115 S))

JOB FILE: 89591

DATE: 10 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRIM PLT - OLIA-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 26 JUN
COMPLETION DATE: 10 JUL

COLUMN..... 19
ANALYTE..... 328
US/KG..... PTERP-S

SAMP # DESCRIPTION

89591	CAN BULK A	CONC	75.9%	
	6/21/00 1100	PREC		
	GR NW DMP CELL4	DUP1		
		QID	08899181	
89592	CAN BULK B	CONC	77.0%	
	6/21/00 1100	PREC	79.5	
	GR NW DMP CELL4	DUP1		
		QID	08890181	
BLND1	METHOD BLANK 01	CONC	80.2%	
		PREC		
		DUP1		
		QID	08899181	
BLND2	LCS 01	CONC	70.5%	
		PREC		
		DUP1		
		QID	08890181	

PTERP-S p-Terphenyl-D14(Surrogate (18-137 83))

INTERNAL QC DATA

Jobfile Number: 89591
 Project: GREEN BAY MOBILE TRTMT PLT - OLIN-RTES
 Account Number: 0054PD-92310183
 Date Received: 26 JUN 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89591	89592	290	NAPHTH	40.0	51.5	25.1	08890181
89591	89592	294	ACENAY	58.5	58.5	0.0	08890181
89591	89592	296	ACENAP	62.5	60.5	3.3	08890181
89591	89592	297	FLUORE	77.5	75.5	2.6	08890181
89591	89592	304	ANTRAC	87.5	84.0	4.1	08890181
89591	89592	309	CHRYSE	73.5	77.0	4.7	08890181
89591	89592	310	BAANTHR	85.0	94.5	10.6	08890181
89591	89592	313	BBFLANT	81.5	75.5	7.6	08890181
89591	89592	314	BKFLANT	55.5	60.0	7.8	08890181
89591	89592	315	BAPYRE	62.0	67.0	7.8	08890181
89591	89592	316	I123PYR	79.5	79.5	0.0	08890181
89591	89592	317	DBAHANT	87.5	8750.0	196.0	08890181
89591	89592	318	B-GHI-PY	76.0	75.0	1.3	08890181
89591	89592	322	2MeNAPH	68.0	65.5	3.7	08890181
89591	89592	327	2FlBP-S	65.1	65.0	0.2	08890181
89591	89592	328	PTERP-S	79.5	81.1	2.0	08890181

8/23/03
JOB FILE: 89723

DATE: 03 AUG

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 3) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRNT PLANT - DLIN-ESTES JOB NUMBER: 0054PD-92310183 RECEIPT DATE: 03 JUL 1
CHEM. PRESERVATIVE: TYPE OF SAMPLE: SEDIMENT COMPLETION DATE: 3 AUG 1

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
MG/KG.....	AS	CD	CR	CU	PB	HG

SAMP #	DESCRIPTION							
89723	BULK 1,2,3 +2.0	CONC 1.80	0.669	41.3	27.3	40.9	0.625	
		PREC 95.4	91.4	81.2	76.8	99.2	105.2	
		DUPL 1.80	0.699	43.5	29.0	41.9	0.631	
		QID 01260215	01260215	01260215	01260215	01230209	04650199	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
89724	BULK 1,2,3 +2.0	CONC 2.99	1.94	85.2	97.2	51.0	2.20	
		PREC						
		DUPL						
		QID 01260215	01260215	01260215	01260215	01230209	04650199	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
BL#01	METHOD BLANK 01	CONC <0.200	<0.020	<0.100	0.600	<1.00	<0.040	
		PREC						
		DUPL						
		QID 01260215	01260215	01260215	01260215	01230209	04650199	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
BL#02	LCS 01	CONC 9.40	4.80	19.0	17.4	21.0	0.0752	
		PREC 93.7	96.8	95.8	87.0	105.0	100.3	
		DUPL						
		QID 01260215	01260215	01260215	01260215	01230209	04650199	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
BL#03	EXTERNAL QC 01	CONC 60.3	37.1	22.5	86.9	1140	0.053	
		PREC						
		DUPL						
		QID 01260215	01260215	01260215	01260215	01230209	04650199	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		

AS	Arsenic	CD	Cadmium
CR	Chromium	CU	Copper
PB	Lead	HG	Mercury

JOB FILE: 89723

DATE: 03 AUG 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 3) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES
CHEN. PRESERVATIVE:

JOB NUMBER: 0054PD-02310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 03 JUL 1
COMPLETION DATE: 3 AUG 0

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	30
AD/XS.....	NI	SE	AG	ZN	BA	FE

SAMP # DESCRIPTION

80

89723	BULK 1,2,3 >2.0	CONC	17.2	0.599	0.400	91.5	70.7	14600
		PREC	95.2	84.8	94.4	89.2	97.8	230.0
		DUP1	17.5	0.599	0.400	91.3	71.8	14800
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			
89724	BULK 1,2,3 <2.0	CONC	17.4	0.998	0.599	128	73.5	7850
		PREC						
		DUP1						
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			
BL001	METHOD BLANK 01	CONC	1.20	<0.200	<0.100	<1.00	<0.100	<2.00
		PREC						
		DUP1						
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			
BL002	LCS 01	CONC	21.6	4.10	4.50	49.9	51.0	110
		PREC	108.0	82.8	90.8	99.8	102.0	110.0
		DUP1						
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			
BL003	EXTERNAL QC 01	CONC	16.6	1.69	4.49	282	195	24900
		PREC						
		DUP1						
		QID	01230209	01260215	01260215	01230209	01230209	01230209
			HGA AUTH		HGA AUTH			

NI Nickel
AG Silver
BA Barium

SE Selenium
ZN Zinc
FE Iron

JOB FILE: 89723

DATE: 03 AUG

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 3) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-92310185
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 03 JUL
COMPLETION DATE: 3 AUG

COLUMN.....	13	14
ANALYTE.....	32	33
MG/EG.....	MM	MO

SAMP # DESCRIPTION

89723	BULK 1,2,3 >2.0	CONC	352	0.203
		SRCC	104.0	105.2
		DUP1	385	0.200
		QID	01230209	01260215
		HGA AUTH		

89724	BULK 1,2,3 <2.0	CONC	434	0.699
		SRCC		
		DUP1		
		QID	01230209	01260215
		HGA AUTH		

BL#01	METHOD BLANK 01	CONC	<0.100	<0.100
		SRCC		
		DUP1		
		QID	01230209	01260215
		HGA AUTH		

BL#02	LCS 01	CONC	99.6	5.00
		SRCC	98.0	100.2
		DUP1		
		QID	01230209	01260215
		HGA AUTH		

BL#03	EXTERNAL QC 01	CONC	492	0.997
		SRCC		
		DUP1		
		QID	01230209	01260215
		HGA AUTH		

MM Manganese

MO Molybdenum

R.K.
7/17/00

JOB FILE: 89725

DATE: 17 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN WAY MOBILE TREAT PLANT - OLIN-ESTES
 CHEM. PRESERVATIVE)

JOB NUMBER: 0054PB-92310183
 TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 03 JUL
 COMPLETION DATE: 17 JUL

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
IS/MS.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP # DESCRIPTION

89725	BULK 1,2,3 >2.0	CONC	<15.8	<15.8	<15.8	351	<15.8	<15.8
		REC	74.4					
		DUP1						
		Q10	54830193	54830193	54830193	54830193	54830183	54830193
89726	BULK 1,2,3 <2.0	CONC	<27.1	<27.1	<27.1	3278	<27.1	<27.1
		REC						
		DUP1						
		Q10	54830196	54830196	54830196	54830196	54830196	54830196
BLK01	METHOD BLANK 01	CONC	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3
		REC						
		DUP1						
		Q10	54830193	54830193	54830193	54830193	54830183	54830193
BLK02	LCS 01	CONC	0.86	N/A	N/A	N/A	N/A	N/A
		REC	102.8					
		DUP1						
		Q10	54830193	54830193	54830193	54830193	54830183	54830193

PCB-1016 PCB-1016
 PCB-1232 PCB-1232
 PCB-1248 PCB-1248

PCB-1221 PCB-1221
 PCB-1242 PCB-1242
 PCB-1254 PCB-1254

JOB FILE: 89725

DATE: 17 JU

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRAIL PLANT - CLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0254PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 03 JU
COMPLETION DATE: 17 JU

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
UO/KG.....	PCB-1260	TeIXYL-S	DCLEP

SAMP # DESCRIPTION

89725	BULK 1,2,3 >2.0	CONC	27.3	93.5%	75.3%
		REC	85.2	88.9	74.6
		DUPL			
		QID	54830193	54830193	54830193

89726	BULK 1,2,3 <2.0	CONC	111	84.0%	84.9%
		REC			
		DUPL			
		QID	54830196	54830196	54830196

BL#01	METHOD BLANK 01	CONC	<0.3	96.6%	80.1%
		REC			
		DUPL			
		QID	54830193	54830193	54830193

BL#02	LCS 01	CONC	0.88	99.1%	81.8%
		REC	106.0		
		DUPL			
		QID	54830193	54830193	54830193

PCB-1260 PCB-1260

DCLEP Decachlorobiphenyl (Surrogate (60-150 MS))

TeIXYL-S 2,4,5,6-Tetrachloro-m-xylene (Surrogate (60-150 MS))

INTERNAL QC DATA

Jobfile Number: 89725
Project: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 03 JUL 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
89725	89725	143	PCB-1260	85.2	84.8	0.5	54830193
89725	89725	145	TclXYL-S	88.9	86.7	2.5	54830193
89725	89725	146	DCLBP	74.4	73.0	1.9	54830193

RF
7/17/00

JOB FILE: 89727

DATE: 17 JUL 00

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TENT PLANT - CLIN-ESTES
CHRM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 03 JUL 00
COMPLETION DATE: 17 JUL 00

COLUMN..... 1		2		3		4		5		6	
ANALYTE..... 290		294		296		297		303		304	
WE/KG..... NAPHTH		ACENAP		ACENAP		FLUORE		PHENAN		ANTHAC	
SAMP #	DESCRIPTION	RC									
89727	BULK 1,2,3 >2.0	CONC	29.9	<5.4	<5.4	10.8	70.0	10.2			
		SEC	46.0	50.0	64.0	67.5	71.5	70.3			
		DUP									
		QID	00890198	00890198	00890198	00890198	00890198	00890198			
89728	BULK 1,2,3 <2.0	CONC	513	43.4	72.0	169	1180	215			
		SEC									
		DUP									
		QID	00890198	00890198	00890198	00890198	00890198	00890198			
BLW01	METHOD BLANK 01	CONC	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3			
		SEC									
		DUP									
		QID	00890198	00890198	00890198	00890198	00890198	00890198			
BLW02	LCS 01	CONC	36.0	34.0	44.7	45.3	40.3	43.3			
		SEC	34.0	51.0	67.0	68.0	72.5	65.0			
		DUP									
		QID	00890198	00890198	00890198	00890198	00890198	00890198			
NAPHTH	Naphthalene	ACENAP		Acenaphthylene							
ACENAP	Acenaphthene	FLUORE		Fluorene							
PHENAN	Phenanthrene	ANTHAC		Anthracene							

JOB FILE: 89727

DATE: 17 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
 CHEN. PRESERVATIVE:

JOB NUMBER: 0054PD-92310163
 TYPE OF SAMPLE: SEGMENT

RECEIPT DATE: 03 JUL
 COMPLETION DATE: 17 JUL

COLLUM.....	7	8	9	10	11	12
ANALYTE.....	300	307	309	310	313	314
UG/KG.....	FLANTHE	PYRENE	CHRYSE	BAANTHR	BBFLANT	BKFLANT

SAMP # DESCRIPTION

89727	BULK 1,2,3 >2.0	CONC 99.9	82.1	66.2	29.9	53.4	32.4
		SRSC 85.0	85.0	88.5	94.5	90.0	78.0
		DUP1					
		D10 08890198	08890198	08890198	08890198	08890198	08890198

89728	BULK 1,2,3 >2.0	CONC 1690	1570	992	720	762	521
		SRSC					
		DUP1					
		D10 08890198	08890198	08890198	08890198	08890198	08890198

BLR01	METHOD BLANK 01	CONC <3.3	<3.3	<3.3	<3.3	<3.3	<3.3
		SRSC					
		DUP1					
		D10 08890198	08890198	08890198	08890198	08890198	08890198

BLR02	LCS 01	CONC 50.0	42.3	59.3	51.0	60.0	61.0
		SRSC 75.0	63.5	89.0	76.5	90.0	91.5
		DUP1					
		D10 08890198	08890198	08890198	08890198	08890198	08890198

FLANTHE Fluoranthene
 CHRYSE Chrysene
 BBFLANT Benzo(b)Fluoranthene

PYRENE Pyrene
 BAANTHR Benzo(a)Anthracene
 BKFLANT Benzo(k)Fluoranthene

JOB FILE: 89727

DATE: 17 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92510183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 03 JUN
COMPLETION DATE: 17 JUN

COLUMN.....	13	14	15	16	17	18
ANALYTE.....	315	316	317	318	322	327
UG/KG.....	BAPYRE	1123PYR	DBAHANT	8-GR1-PY	2MeNAPH	2FLBP-S

SAMP # DESCRIPTION

89727	BULK 1,2,3 >2.0	CONC	35.6	39.4	5.1	48.3	31.8	72.6%
		REC	79.0	92.0	88.0	88.5	56.0	62.5
		DUP						
		QID	08890198	08890198	08890198	08890198	08890198	08890198
89728	BULK 1,2,3 <2.0	CONC	747	637	105	678	574	52.4%
		REC						
		DUP						
		QID	08890198	08890198	08890198	08890198	08890198	08890198
BL#01	METHOD BLANK 01	CONC	<3.3	<3.3	<3.3	<3.3	<3.3	77.6%
		REC						
		DUP						
		QID	08890198	08890198	08890198	08890198	08890198	08890198
BL#02	LCS 01	CONC	50.0	54.7	60.3	57.7	40.3	67.6%
		REC	75.0	82.0	90.5	86.5	60.5	
		DUP						
		QID	08890198	08890198	08890198	08890198	08890198	08890198

BAPYRE Benzo[a]Pyrene
DBAHANT Dibenzo[A,h]Anthracene
2MeNAPH 2-Methylnaphthalene

1123PYR Indeno(1,2,3-c,d)Pyrene
8-GR1-PY Benzo[ghi,perylene]
2FLBP-S 2-Fluorobiphenyl(Surrogate (30-115 S))

JOB FILE: 89727

DATE: 17 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 4) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005490-92510183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 03 JUL
COMPLETION DATE: 17 JUL

COLUMN..... 19
ANALYTE..... 328
UG/KG..... PTERP-S

SAMP # DESCRIPTION

89727 BULK 1,2,3 >2.0 CONC 64.9%
SREC 63.5
DUPL
QID 08890198

89728 BULK 1,2,3 <2.0 CONC 63.4%
SREC
DUPL
QID 08890198

BL#01 METHOD BLANK 01 CONC 65.2%
SREC
DUPL
QID 08890198

BL#02 LCS 01 CONC 58.8%
SREC
DUPL
QID 08890198

PTERP-S p-Terphenyl-D14(Surrogate (18-137 S))

INTERNAL QC DATA

Jobfile Number: 89727
 Project: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES
 Account Number: 0054PD-92310183
 Date Received: 03 JUL 00

Job#	Sample	Test	Analyte	% REC	% SDOPL	RPD	OID
89727	89727	290	NAPHTH	46.0	56.0	19.6	08890198
89727	89727	294	ACENAY	50.0	49.5	1.0	08890198
89727	89727	296	ACENAP	64.0	67.5	5.3	08890198
89727	89727	297	FLUORE	67.5	67.5	0.0	08890198
89727	89727	303	PHENAN	71.5	73.5	2.8	08890198
89727	89727	304	ANTRAC	70.5	73.0	3.5	08890198
89727	89727	306	FLANTHE	85.0	98.0	14.2	08890198
89727	89727	307	PYRENE	85.0	88.5	4.0	08890198
89727	89727	309	CHRYSE	88.5	89.5	1.1	08890198
89727	89727	310	BAANTHR	94.5	96.0	1.6	08890198
89727	89727	313	BBFLANT	90.0	90.0	0.0	08890198
89727	89727	314	BKFLANT	78.0	74.0	5.3	08890198
89727	89727	315	BAPYRE	79.0	84.0	6.1	08890198
89727	89727	316	I123PYR	92.0	87.0	5.6	08890198
89727	89727	317	DSAHANT	88.0	81.5	7.7	08890198
89727	89727	318	B-GHI-PY	88.5	82.5	7.0	08890198
89727	89727	322	2MeNAPH	56.0	66.0	16.4	08890198
89727	89727	327	2FLBP-S	62.5	69.0	9.9	08890198
89727	89727	328	PTERP-S	63.5	63.9	0.6	08890198

JOB FILE: 89729

DATE: 14 JUL 1

Handwritten: 15-14-20

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 1) *****

JOB DESCRIPTION: GREEN BAY MOBILE TRMT PLANT - OLIN-ESTER
C4M. PRESERVATIVE:

JOB NUMBER: 6054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 03 JUL 0
COMPLETION DATE: 14 JUL 0

COLUMN.....	1	2	3	4
ANALYTE.....	85	95	100	104
MG/KG.....	TOC	TVS	OGC	TRPH

SAMP #	DESCRIPTION					RC
89729	MULK 1,2,3 +2.0 CONC 27800	<4	67	54.8		
	SRUC					
	DUP1 28400					
	QID 60040193	10150188	55990189	55990191		
89730	MULK 1,2,3 +2.0 CONC 47700	<4	640	350.8		
	SRUC					
	DUP1					
	QID 60040193	10150188	55990189	55990191		
8L401	MET400 BLANK 01 CONC +100	<4	+35	8.4		
	SRUC					
	DUP1					
	QID 60040193	10150188	55990189	55990191		
8L402	LCS 01 CONC 9890	N/A	932	940		
	SRUC 98.9		91.7	93.3		
	DUP1					
	QID 60040193	10150188	55990189	55990191		
8L403	EXTERNAL QC 01 CONC 19000	N/A	N/A	N/A		
	SRUC					
	DUP1					
	QID 60040193	10150188	55990189	55990191		

TOC Total Organic Carbon
OGC Oil and Grease

TVS Total Volatile Solids
TRPH Total Recoverable Petroleum Hydrocarbons

INTERNAL QC DATA

Jobfile Number: 89729
Project: GREEN BAY MOBILE TRNT PLANT - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 03 JUL 00

Job#	Sample	Tst	Analyte	% REC	% SDOPL	RPD	OID
89729	BL#02	100	O&G	91.7	91.2	0.5	55990189
89729	BL#02	104	TRPH	93.3	93.0	0.3	55990191

Rx
 8/31/00
 PCB FILE: 90709

DATE: 31 AUG 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
 CONN. PRESERVATIVE: NONE

JOB NUMBER: 0054PD-92310183
 TYPE OF SAMPLE: WATER

RECEIPT DATE: 15 AUG 0
 COMPLETION DATE: 30 AUG 0

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
PCB.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP #	DESCRIPTION							RT
--------	-------------	--	--	--	--	--	--	----

90709	GREEN BAY	CONC	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	
	SUPPLY WATER	%REC							
	8/10/00 0930	DUPL							
		QID	54830238	54830238	54830238	54830238	54830238	54830238	

BL#01	METHOD BLANK 01	CONC	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	
		%REC							
		DUPL							
		QID	54830238	54830238	54830238	54830238	54830238	54830238	

BL#02	LCS 01	CONC	0.24	N/A	N/A	N/A	N/A	N/A	
		%REC	96.0						
		DUPL							
		QID	54830238	54830238	54830238	54830238	54830238	54830238	

PCB-1016 PCB-1016
 PCB-1232 PCB-1232
 PCB-1248 PCB-1248

PCB-1221 PCB-1221
 PCB-1242 PCB-1242
 PCB-1254 PCB-1254

JOB FILE: 90789

DATE: 31 AUG 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHDM. PRESERVATIVE: NONE

JOB NUMBER: 0054PD-923101B3
TYPE OF SAMPLE: WATER

RECEIPT DATE: 15 AUG 1
COMPLETION DATE: 30 AUG 1

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
PPB.....	PCB-1260	Te1XYL-5	DCLBP

SAMP # DESCRIPTION

81

90789	GREEN BAY	CONC	<0.24	67.5%	71.3%
	SUPPLY WATER	SRRC			
	8/10/00 0930	DUP			
		QID	54830238	54830238	54830238

BL#01	METHOD BLANK Q1	CONC	<0.25	77.9%	75.3%
		SRRC			
		DUP			
		QID	54830238	54830238	54830238

BL#02	LCS Q1	CONC	0.24	77.8%	74.9%
		SRRC	95.0		
		DUP			
		QID	54830238	54830238	54830238

PCB-1260 PCB-1260
DCLBP Decachlorobiphenyl(Surrogate (40-140 M83))

Te1XYL-5 2,4,5,6-Tetrachloro-p-xylene(Surrogate(40-140 M8

RK
8/17/00
90808

DATE: 31 AUG 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 6) *****

JOB DESCRIPTION: GREEN BAY - GLEN-ESTES
CHDR. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 17 AUG 0
COMPLETION DATE: 31 AUG 0

COLUMN.....	1	2	3	4	5	6	
ANALYTE.....	137	138	139	140	141	142	
UG/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	
SAMP #	DESCRIPTION						RC
90808	GREEN BAY	CONC	<8.69	<8.69	<8.69	<8.69	
	1400-1 8/10/00	WREC	134.8				
	UNDERFLOW	DUP1					
		Q10	54830238	54830238	54830238	54830238	
90809	GREEN BAY	CONC	<9.08	<9.08	<9.08	<9.08	
	1400-2 8/10/00	WREC					
	UNDERFLOW	DUP1					
		Q10	54830238	54830238	54830238	54830238	
90810	GREEN BAY	CONC	<9.37	<9.37	<9.37	<9.37	
	1505-1 8/10/00	WREC					
	UNDERFLOW	DUP1					
		Q10	54830238	54830238	54830238	54830238	
90811	GREEN BAY	CONC	<8.80	<8.80	<8.80	<8.80	
	1505-2 8/10/00	WREC					
	UNDERFLOW	DUP1					
		Q10	54830238	54830238	54830238	54830238	
90812	GREEN BAY	CONC	<8.88	<8.88	<8.88	<8.88	
	1525-1 8/10/00	WREC					
	UNDERFLOW	DUP1					
		Q10	54830238	54830238	54830238	54830238	
90813	GREEN BAY	CONC	<8.93	<8.93	<8.93	<8.93	
	1525-2 8/10/00	WREC					
	UNDERFLOW	DUP1					
		Q10	54830238	54830238	54830238	54830238	
PCB-1016	PCB-1016			PCB-1221	PCB-1221		
PCB-1232	PCB-1232			PCB-1242	PCB-1242		
PCB-1248	PCB-1248			PCB-1254	PCB-1254		

JOB FILE: 90808

DATE: 31 AUG 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 17 AUG 1
COMPLETION DATE: 31 AUG 1

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
US/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP #	DESCRIPTION							
90814	GREEN BAY 1625-1 8/10/00 UNDERFLOW	CONC	<9.21	<9.21	<9.21	154	<9.21	<9.21
		WREC						
		DUPL						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
90815	GREEN BAY 1625-2 8/10/00 UNDERFLOW	CONC	<9.02	<9.02	<9.02	180	<9.02	<9.02
		WREC						
		DUPL						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
90816	GREEN BAY 1715-1 8/10/00 UNDERFLOW	CONC	<8.60	<8.60	<8.60	130	<8.60	<8.60
		WREC						
		DUPL						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
90817	GREEN BAY 1715-2 8/10/00 UNDERFLOW	CONC	<8.87	<8.87	<8.87	152	<8.87	<8.87
		WREC						
		DUPL						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
90818	GREEN BAY FEED 1409-1 8/10/00	CONC	<16.3	<16.3	<16.3	2565	<16.3	<16.3
		WREC						
		DUPL						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
90819	GREEN BAY FEED 1501-1 8/10/00	CONC	<17.4	<17.4	<17.4	2999	<17.4	<17.4
		WREC						
		DUPL						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
PCB-1016	PCB-1016			PCB-1221	PCB-1221			
PCB-1232	PCB-1232			PCB-1242	PCB-1242			
PCB-1248	PCB-1248			PCB-1254	PCB-1254			

JOB FILE: 90801

DATE: 31 AUG 01

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 17 AUG 01
COMPLETION DATE: 31 AUG 01

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
UG/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP #	DESCRIPTION							RL
90820	GREEN BAY FEED	CONC	<13.2	<13.2	<13.2	2137	<13.2	<13.2
	1525-1 8/10/00	PREC						
		DUP1						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
90821	GREEN BAY FEED	CONC	<14.2	<14.2	<14.2	2108	<14.2	<14.2
	1525-1 8/10/00	PREC						
		DUP1						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
90822	GREEN BAY FEED	CONC	<12.1	<12.1	<12.1	1969	<12.1	<12.1
	1715-1 8/10/00	PREC						
		DUP1						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
BLA01	METHOD BLANK 01	CONC	<6.25	<6.25	<6.25	<6.25	<6.25	<6.25
		PREC						
		DUP1						
		QID	54830238	54830238	54830238	54830238	54830238	54830238
BLA02	LCS 01	CONC	0.625	N/A	N/A	N/A	N/A	N/A
		PREC	100.0					
		DUP1						
		QID	54830238	54830238	54830238	54830238	54830238	54830238

PCB-1016 PCB-1016
PCB-1232 PCB-1232
PCB-1248 PCB-1248

PCB-1221 PCB-1221
PCB-1242 PCB-1242
PCB-1254 PCB-1254

JOB FILE: 90808

DATE: 31 AUG 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 6) *****

JOB DESCRIPTION: GREEN BAY - ULIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 17 AUG 1
COMPLETION DATE: 31 AUG 1

COLUMN.....	7	8	9	10
ANALYTE.....	143	145	146	900
UG/KG.....	PCB-1260	TeIXYL-S	BCLBP	% MOISTU
SAMP #	DESCRIPTION			
90808	GREEN BAY	CONC 13.7	83.2%	83.5%
	1430-1 8/10/00	WREC 89.6	81.6	65.8
	UNDERFLOW	DUPL		
		OID 54830238	54830238	55150234
90809	GREEN BAY	CONC 21.2	80.5%	87.8%
	1430-2 8/10/00	WREC		19.1%
	UNDERFLOW	DUPL		
		OID 54830238	54830238	55150234
90810	GREEN BAY	CONC 7.48 J	82.8%	76.6%
	1505-1 8/10/00	WREC		21.6%
	UNDERFLOW	DUPL		
		OID 54830238	54830238	55150234
90811	GREEN BAY	CONC 3.69 J	82.4%	74.8%
	1505-2 8/10/00	WREC		16.6%
	UNDERFLOW	DUPL		
		OID 54830238	54830238	55150234
90812	GREEN BAY	CONC 7.23 J	87.3%	74.7%
	1525-1 8/10/00	WREC		18.1%
	UNDERFLOW	DUPL		
		OID 54830238	54830238	55150234
90813	GREEN BAY	CONC 14.9	85.5%	86.6%
	1525-2 8/10/00	WREC		18.5%
	UNDERFLOW	DUPL		
		OID 54830238	54830238	55150234
PCB-1260	PCB-1260		TeIXYL-S	2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 W3
BCLBP	Decachlorobiphenyl(Surrogate (40-140 W3))		% MOISTU	PERCENT MOISTURE

JOB FILE: 99808

DATE: 31 AUG 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054P0-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 17 AUG 1
COMPLETION DATE: 31 AUG 1

COLUMN.....	7	8	9	10
ANALYTE.....	143	145	146	900
UG/KG.....	PCB-1260	ToiXyl-S	DCLBP	% MOISTU

SAMP # DESCRIPTION

90

90814	GREEN BAY	CCMC	14.5		79.4%		90.8%		21.2%	
	1625-1 8/10/00	3REC								
	UNDERFLOW	DUP								
		OTD	54830238		54830238		54830238		55150234	
90815	GREEN BAY	CCMC	12.4		78.4%		71.4%		19.7%	
	1625-2 8/10/00	3REC								
	UNDERFLOW	DUP								
		OTD	54830238		54830238		54830238		55150234	
90816	GREEN BAY	CCMC	14.3		76.6%		91.2%		16.0%	
	1715-1 8/10/00	3REC								
	UNDERFLOW	DUP								
		OTD	54830238		54830238		54830238		55150234	
90817	GREEN BAY	CCMC	9.70		74.8%		66.8%		17.3%	
	1715-2 8/10/00	3REC								
	UNDERFLOW	DUP								
		OTD	54830238		54830238		54830238		55150234	
90818	GREEN BAY FEED	CCMC	164		81.2%		91.4%		52.5%	
	1400-1 8/10/00	3REC								
		DUP								
		OTD	54830238		54830238		54830238		55150234	
90819	GREEN BAY FEED	CCMC	236		80.9%		97.1%		55.5%	
	1501-1 8/10/00	3REC								
		DUP								
		OTD	54830238		54830238		54830238		55150234	

PCB-1260 PCB-1260

DCLBP Decachlorobiphenyl(Surrogate 140-140 WS)

ToiXyl-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS

% MOISTU PERCENT MOISTURE

JOB FILE: 90808

DATE: 31 AUG 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 8054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 17 AUG 1
COMPLETION DATE: 31 AUG 1

COLUMN.....	7	8	9	10
ANALYTE.....	143	145	146	900
UG/KG.....	PCB-1260	TeIXYL-S	DCLBP	% MOISTU

SAMP #	DESCRIPTION						RL
90820	GREEN BAY FEED	CONC	166	78.3%	98.7%	41.1%	1
	1525-1 8/10/00	WREC					
		DUPL					
	OID	54830238	54830238	54830238	55150234		
90821	GREEN BAY FEED	CONC	160	79.2%	86.2%	44.9%	1
	1625-1 8/10/00	WREC					
		DUPL					
	OID	54830238	54830238	54830238	55150234		
90822	GREEN BAY FEED	CONC	163	78.8%	90.5%	36.3%	1
	1715-1 8/10/00	WREC					
		DUPL					
	OID	54830238	54830238	54830238	55150234		
BLND1	METROD BLANK DT	CONC	46.25	95.2%	83.1%	N/A	1
		WREC					
		DUPL					
	OID	54830238	54830238	54830238	55150234		
BLND2	LCS DT	CONC	0.635	95.7%	81.3%	N/A	1
		WREC	101.6				
		DUPL					
	OID	54830238	54830238	54830238	55150234		

PCB-1260	PCB-1260	TeIXYL-S	2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 MS
DCLBP	Decachlorobiphenyl(Surrogate (40-140 MS))	% MOISTU	PERCENT MOISTURE

INTERNAL QC DATA

Jobfile Number: 90808
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 17 AUG 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
90808	90808	137	PCB-1016	134.8	154.4	13.6	54830238
90808	90808	143	PCB-1260	89.6	97.2	8.1	54830238
90808	90808	145	TelXYL-S	81.6	87.2	6.6	54830238
90808	90808	146	DCLBP	65.8	78.1	17.1	54830238

JOB FILE: 90823

DATE: 23 OCT 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
 CENR. PRESERVATIVE:

JOB NUMBER: 0054P0-92310183
 TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 17 AUG 1
 COMPLETION DATE: 23 OCT 1

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
MG/KG.....	AS	CD	CR	CU	PB	HG

SAMP #	DESCRIPTION							
90823	GREEN BAY 1400-1 8/10/00 UNDERFLOW	CONC 0.600 WREC 91.4 DUPL 0.600 OID 01260269	0.030 96.2 0.030 01260269 HGA AUTH	3.10 104.2 3.10 01260269 HGA AUTH	2.80 103.0 2.80 01260269 HGA AUTH	2.60 105.6 2.60 01260269 HGA AUTH	<0.040 96.0 <0.040 04650252	
90824	GREEN BAY 1400-2 8/10/00 UNDERFLOW	CONC 0.499 WREC DUPL OID 01260269	0.300 01260269 HGA AUTH	2.90 01260269 HGA AUTH	2.70 01260269 HGA AUTH	2.50 01260269 HGA AUTH	<0.040 04650252	
90825	GREEN BAY 1501-1 8/10/00 UNDERFLOW	CONC 0.468 WREC DUPL OID 04360291	0.030 04360292 HGA AUTH	2.09 01230286 HGA AUTH	6.38 01230286 HGA AUTH	2.19 01230286 HGA AUTH	<0.040 04650252	
90826	GREEN BAY 1505-2 8/10/00 UNDERFLOW	CONC 0.400 WREC DUPL OID 01260269	0.020 01260269 HGA AUTH	2.50 01230286 HGA AUTH	1.30 01260269 HGA AUTH	2.10 01230286 HGA AUTH	<0.040 04650252	
90827	GREEN BAY 1525-1 8/10/00 UNDERFLOW	CONC 0.499 WREC DUPL OID 01260269	0.0399 01260269 HGA AUTH	3.49 01230286 HGA AUTH	6.49 01260269 HGA AUTH	2.99 01230286 HGA AUTH	<0.040 04650252	
90828	GREEN BAY 1525-2 8/10/00 UNDERFLOW	CONC 0.499 WREC DUPL OID 01260269	0.0299 01260269 HGA AUTH	3.49 01230286 HGA AUTH	3.99 01260269 HGA AUTH	2.70 01230286 HGA AUTH	<0.040 04650252	
AS	Arsenic			CD	Cadmium			
CR	Chromium			CU	Copper			
PB	Lead			HG	Mercury			

JOB FILE: 90823

DATE: 23 OCT 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 17 AUG 0
COMPLETION DATE: 23 OCT 0

		COLUMN.....	1	2	3	4	5	6	
		ANALYTE.....	2	4	5	6	7	8	
		MG/KG.....	AS	CD	CR	CU	PB	HG	
SAMP #	DESCRIPTION								RE
90829	GREEN BAY 1625-1 8/10/00 UNDERFLOW	CONC 0.399 %REC DUPL OID 01260269	0.020 01260269 HGA AUTH	2.30 01230286 HGA AUTH	1.20 01260269 HGA AUTH	2.10 01230286 HGA AUTH	<0.040 04650252 		
90830	GREEN BAY 1625-2 8/10/00 UNDERFLOW	CONC 0.583 %REC DUPL OID 04360291	0.050 04360262 HGA AUTH	3.40 01230286 HGA AUTH	2.10 01260269 HGA AUTH	3.00 01230286 HGA AUTH	<0.040 04650252 		
90831	GREEN BAY 1715-1 8/10/00 UNDERFLOW	CONC 0.529 %REC 109.3 DUPL 0.569 OID 04360291	0.033 104.5 0.034 04360262 HGA AUTH	3.39 100.6 3.39 01230286 HGA AUTH	2.20 97.6 1.60 01260269 HGA AUTH	5.09 103.0 4.99 01230286 HGA AUTH	<0.040 98.0 <0.040 04650252 		
90832	GREEN BAY 1715-2 8/10/00 UNDERFLOW	CONC 0.410 %REC DUPL OID 04360291	0.038 04360262 HGA AUTH	2.50 01230286 HGA AUTH	4.70 01260269 HGA AUTH	6.10 01230286 HGA AUTH	<0.040 04650252 		
90833	GREEN BAY FEED 1600-1 8/10/00	CONC 4.55 %REC DUPL OID 04360291	0.820 04360262 HGA AUTH	58.6 01230286 HGA AUTH	61.3 01260269 HGA AUTH	57.0 01230286 HGA AUTH	1.27 04650252 		
90834	GREEN BAY FEED 1505-1 8/10/00	CONC 3.99 %REC DUPL OID 04360291	0.733 04360262 HGA AUTH	52.2 01230286 HGA AUTH	51.2 01260269 HGA AUTH	53.5 01230286 HGA AUTH	1.35 04650252 		
AS	Arsenic				CD	Cadmium			
CR	Chromium				CU	Copper			
PB	Lead				HG	Mercury			

JOB FILE: 90823

DATE: 23 OCT 8

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEN, PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 17 AUG 8
COMPLETION DATE: 23 OCT 8

		COLUMN.....	1	2	3	4	5	6	
		ANALYTE.....	2	4	5	6	7	8	
		MG/KG.....	AS	CD	CR	CU	PB	HG	
SAMP #	DESCRIPTION								RI
90835	GREEN BAY FEED 1525-1 B/10/00	CONC 1.42 SREC DUPL QID 04360291	0.250 04360262 HGA AUTH	15.2 01230286 HGA AUTH	15.9 01260269 HGA AUTH	16.6 01230286 HGA AUTH	0.378 04650252 		
90836	GREEN BAY FEED 1625-1 B/10/00	CONC 2.93 SREC DUPL QID 04360291	0.640 04360262 HGA AUTH	45.5 01230286 HGA AUTH	39.8 01260269 HGA AUTH	45.1 01230286 HGA AUTH	0.900 04650252 		
90837	GREEN BAY FEED 1715-1 B/10/00	CONC 1.98 SREC DUPL QID 04360291	0.380 04360262 HGA AUTH	26.3 01230286 HGA AUTH	25.5 01260269 HGA AUTH	25.6 01230286 HGA AUTH	0.470 04650252 		
BLR01	METHOD BLANK 01	CONC <0.200 SREC DUPL QID 04360291	<0.020 01260269 HGA AUTH	<0.100 01230286 HGA AUTH	0.100 01260269 HGA AUTH	0.180 01230286 HGA AUTH	<0.840 04650252 		
BLR02	LCS 01	CONC 9.50 SREC 94.5 DUPL QID 04360291	4.99 99.8 01260269 HGA AUTH	22.4 112.0 01230286 HGA AUTH	21.8 109.0 01260269 HGA AUTH	11.5 115.0 01230286 HGA AUTH	0.072 96.0 04650252 		
BLR03	EXTERNAL QC 01	CONC 79.1 SREC DUPL QID 04360291	36.8 01260269 HGA AUTH	16.6 01230286 HGA AUTH	112 01260269 HGA AUTH	119 01230286 HGA AUTH	0.054 90.0 04650252 		
AS	Arsenic			CD	Cadmium				
CR	Chromium			CU	Copper				
PB	Lead			HG	Mercury				

JOB FILE: 90823

DATE: 23 OCT 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEN. PRESERVATIVE:JOB NUMBER: 0054PD-92310785
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 17 AUG 1
COMPLETION DATE: 16 SEP 1

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	30
MG/KG.....	NI	SE	AG	ZN	BA	FE

SAMP # DESCRIPTION

B

90823	GREEN BAY	COND	2.40	<0.200	0.100	5.50	9.29	1830
	1400-1 8/10/00	WREC	101.0	84.0	100.0	84.4	96.2	83.0
	UNDERFLOW	DUP1	2.40	<0.200	0.100	5.50	9.49	1820
		DID	01260269	01260269	01260269	01260269	01260269	01260269
			HGA AUTH		HGA AUTH			
90824	GREEN BAY	COND	2.40	0.200	0.380	5.09	4.99	1730
	1400-2 8/10/00	WREC						
	UNDERFLOW	DUP1						
		DID	01260269	01260269	01260269	01260269	01260269	01260269
			HGA AUTH		HGA AUTH			
90825	GREEN BAY	COND	3.09	<0.200	<0.100	5.08	3.19	1540
	1501-1 8/10/00	WREC						
	UNDERFLOW	DUP1						
		DID	01230286	04360291	04360297	01230286	01230286	01230286
			HGA AUTH		HGA AUTH			
90826	GREEN BAY	COND	2.00	<0.200	0.100	4.59	3.70	1400
	1505-2 8/10/00	WREC						
	UNDERFLOW	DUP1						
		DID	01230286	01260269	01260269	01230286	01230286	01230286
			HGA AUTH		HGA AUTH			
90827	GREEN BAY	COND	2.40	<0.200	0.100	5.69	5.09	2070
	1525-1 8/10/00	WREC						
	UNDERFLOW	DUP1						
		DID	01230286	01260269	01260269	01230286	01230286	01230286
			HGA AUTH		HGA AUTH			
90828	GREEN BAY	COND	2.30	<0.200	0.100	5.99	5.99	1910
	1525-2 8/10/00	WREC						
	UNDERFLOW	DUP1						
		DID	01230286	01260269	01260269	01230286	01230286	01230286
			HGA AUTH		HGA AUTH			

NI Nickel
AG Silver
BA Barium

SE Selenium
ZN Zinc
FE Iron

JOB FILE: 90823

DATE: 23 OCT 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 17 AUG 1
COMPLETION DATE: 14 SEP 1

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	30
MG/KG.....	NI	SE	AG	ZN	BA	FE

SAMP #	DESCRIPTION	CONC	1.00	<0.200	0.100	4.79	3.69	1400
90829	GREEN BAY 1625-1 8/10/00 UNDERFLOW	3REC DUPL DID	1.00 3.10 01230286 HGA AUTH	<0.200 93.8 01260269	0.100 102.0 01260269 HGA AUTH	4.79 93.4 01230286	3.69 101.2 01230286	1400 93.0 01230286
90830	GREEN BAY 1625-2 8/10/00 UNDERFLOW	3REC DUPL DID	3.10 3.29 01230286 HGA AUTH	<0.200 93.8 01260269	<0.100 102.0 04360297 HGA AUTH	6.79 93.4 01230286	5.59 101.2 01230286	2510 93.0 01230286
90831	GREEN BAY 1715-1 8/10/00 UNDERFLOW	3REC DUPL DID	3.49 99.2 01230286 HGA AUTH	<0.200 93.8 04360291	<0.100 102.0 04360297 HGA AUTH	5.99 93.4 01230286	5.19 101.2 01230286	2580 93.0 01230286
90832	GREEN BAY 1715-2 8/10/00 UNDERFLOW	3REC DUPL DID	2.80 3.29 01230286 HGA AUTH	<0.200 93.8 04360291	<0.100 102.0 04360297 HGA AUTH	4.80 93.4 01230286	3.80 101.2 01230286	1820 93.0 01230286
90833	GREEN BAY FEED 1400-1 8/10/00	3REC DUPL DID	23.7 3.29 01230286 HGA AUTH	0.799 93.8 04360291	0.449 102.0 04360297 HGA AUTH	120 93.4 01230286	95.7 101.2 01230286	20600 93.0 01230286
90834	GREEN BAY FEED 1505-1 8/10/00	3REC DUPL DID	22.5 3.29 01230286 HGA AUTH	0.799 93.8 04360291	0.410 102.0 04360297 HGA AUTH	101 93.4 01230286	82.1 101.2 01230286	18600 93.0 01230286
NI	Nickel			SE	Selenium			
AG	Silver			ZN	Zinc			
BA	Barium			FE	Iron			

JOB FILE: 90823

DATE: 23 OCT 8

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: DC54PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 17 AUG 8
COMPLETION DATE: 14 SEP 8

		COLUMN.....	7	8	9	10	11	12
		ANALYTE.....	9	10	11	13	25	30
		MG/KG.....	NI	SE	AG	ZN	BA	FE
SAMP #	DESCRIPTION							
90835	GREEN BAY FEED 1525-1 8/10/00	CONC 9.18 3REC DUPL OID 01230286 HGA AUTH	0.260	0.120	30.2	24.0	6180	
90836	GREEN BAY FEED 1625-1 8/10/00	CONC 15.8 3REC DUPL OID 01230286 HGA AUTH	0.340	0.370	85.3	65.9	14400	
90837	GREEN BAY FEED 1715-1 8/10/00	CONC 11.8 3REC DUPL OID 01230286 HGA AUTH	0.340	0.200	51.4	40.5	9810	
BL#01	METHOD BLANK 01	CONC 0.100 3REC DUPL OID 01230286 HGA AUTH	<0.200	<0.100	<1.00	<0.100	2.40	
BL#02	LCS 01	CONC 21.9 3REC 109.5 DUPL OID 01230286 HGA AUTH	4.10 82.0	4.60 92.4	43.7 87.4	50.6 101.2	101 101.0	
BL#03	EXTERNAL QC 01	CONC 15.9 3REC DUPL OID 01230286 HGA AUTH	1.40	3.90	281	185	20300	
NI	Nickel			SE	Selenium			
AG	Silver			ZN	Zinc			
BA	Barium			FE	Iron			

JOB FILE: 90823

DATE: 23 OCT 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 7 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEN. PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 17 AUG 1
COMPLETION DATE: 14 SEP 1

COLUMN.....	13	14
ANALYTE.....	32	33
MG/KG.....	MM	MO

SAMP # DESCRIPTION

90823	GREEN BAY	CONC	48.8	0.100
	1400-1 8/10/00	SRRC	99.0	102.2
	UNDERFLOW	DUP	48.3	0.100
		QID	01260269	01260269
		HGA AUTH		

90824	GREEN BAY	CONC	60.5	0.100
	1400-2 8/10/00	SRRC		
	UNDERFLOW	DUP		
		QID	01260269	01260269
		HGA AUTH		

90825	GREEN BAY	CONC	34.9	<1.00
	1501-1 8/10/00	SRRC		
	UNDERFLOW	DUP		
		QID	01230286	01260269
		HGA AUTH		

90826	GREEN BAY	CONC	44.9	<1.00
	1505-2 8/10/00	SRRC		
	UNDERFLOW	DUP		
		QID	01230286	01260269
		HGA AUTH		

90827	GREEN BAY	CONC	56.6	0.100
	1525-1 8/10/00	SRRC		
	UNDERFLOW	DUP		
		QID	01230286	01260269
		HGA AUTH		

90828	GREEN BAY	CONC	48.5	0.100
	1525-2 8/10/00	SRRC		
	UNDERFLOW	DUP		
		QID	01230286	01260269
		HGA AUTH		

MM Manganese

MO Molybdenum

JOB FILE: 90823

DATE: 23 OCT 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 8 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEN, PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEGMENT

RECEIPT DATE: 17 AUG 1
COMPLETION DATE: 14 SEP 1

COLUMN..... 13 14
ANALYTE..... 32 33
MG/KG..... MN MO

SAMP # DESCRIPTION

R

90829	GREEN BAY	CONC	40.3	<0.100	
	1625-1 8/10/00	WREC			
	UNDERFLOW	DUP1			
		Q10	01230286	01260269	
		HGA AUTH			
90830	GREEN BAY	CONC	46.6	<0.100	
	1625-2 8/10/00	WREC			
	UNDERFLOW	DUP1			
		Q10	01230286	01260269	
		HGA AUTH			
90831	GREEN BAY	CONC	51.3	<1.00	
	1715-1 8/10/00	WREC	108.2	102.4	
	UNDERFLOW	DUP1	49.5	<1.00	
		Q10	01230286	01260269	
		HGA AUTH			
90832	GREEN BAY	CONC	44.7	<1.00	
	1715-2 8/10/00	WREC			
	UNDERFLOW	DUP1			
		Q10	01230286	01260269	
		HGA AUTH			
90833	GREEN BAY FEED	CONC	442	1.30	
	1400-1 8/10/00	WREC			
		DUP1			
		Q10	01230286	01260269	
		HGA AUTH			
90834	GREEN BAY FEED	CONC	349	1.10	
	1505-1 8/10/00	WREC			
		DUP1			
		Q10	01210786	01260269	
		HGA AUTH			

MN Manganese

MO Molybdenum

JOB FILE: 90025

DATE: 23 OCT 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 9 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 17 AUG 1
COMPLETION DATE: 14 SEP 1

COLUMN..... 13 14
ANALYTE..... 32 33
MG/KG..... MN MO

SAMP # DESCRIPTION

90835	GREEN BAY FEED	CONC	137	<1.00
	1525-1 8/10/00	WREC		
		DUPL		
		QID	01230286	01260269
		HGA AUTH		
90836	GREEN BAY FEED	CONC	257	<1.00
	1625-1 8/10/00	WREC		
		DUPL		
		QID	01230286	01260269
		HGA AUTH		
90837	GREEN BAY FEED	CONC	180	<1.00
	1715-1 8/10/00	WREC		
		DUPL		
		QID	01230286	01260269
		HGA AUTH		
BL#01	METHOD BLANK 01	CONC	<0.100	<1.00
		WREC		
		DUPL		
		QID	01230286	01260269
		HGA AUTH		
BL#02	LCS 01	CONC	22.8	N/A
		WREC	114.0	
		DUPL		
		QID	01230286	01260269
		HGA AUTH		
BL#03	EXTERNAL QC 01	CONC	539	8.403
		WREC		
		DUPL		
		QID	01230286	01260269
		HGA AUTH		

MN Manganese

MO Molybdenum

RK
9/3/00
FILE: 90831

DATE: 30 AUG 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 3) *****

JOB DESCRIPTION: GREEN BAY - OLEFIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 17 AUG 1
COMPLETION DATE: 30 AUG 1

COLUMN.....	1	2	3	4
ANALYTE.....	86	95	100	104
MS/KG.....	100	TVS	G&C	TRPH

SAMP # DESCRIPTION

RI

90838	GREEN BAY	CONC	1130	<4	<38.0	<38.0
	1400-1 8/10/00	WREC			88.5	91.9
	UNDERFLOW	DUP	1350			
		DID	60040240	10150235	55990239	55990242
90839	GREEN BAY	CONC	391	<4	16.0 J	<43
	1400-2 8/10/00	WREC				
	UNDERFLOW	DUP				
		DID	60040240	10150235	55990239	55990242
90840	GREEN BAY	CONC	412	<4	<44.0	<44.0
	1505-1 8/10/00	WREC				
	UNDERFLOW	DUP				
		DID	60040240	10150235	55990239	55990242
90841	GREEN BAY	CONC	602	<4	<41.0	<41.0
	1505-2 8/10/00	WREC				
	UNDERFLOW	DUP				
		DID	60040240	10150235	55990239	55990242
90842	GREEN BAY	CONC	530	<4	21.0 J	<43
	1525-1 8/10/00	WREC				
	UNDERFLOW	DUP				
		DID	60040240	10150235	55990239	55990242
90843	GREEN BAY	CONC	1620	<4	13.0 J	<43
	1525-2 8/10/00	WREC				
	UNDERFLOW	DUP				
		DID	60040240	10150235	55990239	55990242

TOC Total Organic Carbon
O&G Oil and Grease

TVS Total Volatile Solids
TRPH Total Recoverable Petroleum Hydrocarbons

JOB FILE: 90838

DATE: 30 AUG 01

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 3) *****

JOB DESCRIPTION: GREEN BAY - OLEN-ESTER
CHRM. PRESERVATIVE:

JOB NUMBER: 0054PD-92510183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 17 AUG 01
COMPLETION DATE: 30 AUG 01

COLUMN.....	1	2	3	4
ANALYTE.....	86	95	100	104
MG/KG.....	TOC	TVS	O&G	TRPH

SAMP #	DESCRIPTION					
90844	GREEN BAY 1625-1 8/10/00 UNDERFLOW	CONC 765 3REC DUPL OTD 60040240	<4 10150235	23.0 J 55990239	<44 55990242	
90845	GREEN BAY 1625-2 8/10/00 UNDERFLOW	CONC 2570 3REC DUPL OTD 60040240	<4 10150235	10.0 J 55990239	<43 55990242	
90846	GREEN BAY 1715-1 8/10/00 UNDERFLOW	CONC 850 3REC DUPL OTD 60040240	<4 10150235	10.0 J 55990239	<41 55990242	
90847	GREEN BAY 1715-2 8/10/00 UNDERFLOW	CONC 1240 3REC DUPL OTD 60040240	<4 10150235	<42.0 55990239	<42 55990242	
90848	GREEN BAY FEED 1600-1 8/10/00	CONC 28900 3REC DUPL OTD 60040240	<4 10150235	200 55990239	160 55990242	
90849	GREEN BAY FEED 1505-1 8/10/00	CONC 35800 3REC DUPL OTD 60040240	<4 10150235	460 55990239	370 55990242	

TOC Total Organic Carbon
O&G Oil and Grease

TVS Total Volatile Solids
TRPH Total Recoverable Petroleum Hydrocarbons

JOB FILE: 90838

DATE: 30 AUG 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 3) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 17 AUG 1
COMPLETION DATE: 30 AUG 1

COLUMN.....	1	2	3	4
ANALYTE.....	86	95	100	104
MG/KG.....	TOC	TVS	O&G	TRPH

SAMP #	DESCRIPTION						
90850	GREEN BAY FEED	CONC	21300	<4	270	230	
	1525-1 8/10/00	XREC					
		DUP1					
		QID	60040240	10150235	55990239	55990242	
90851	GREEN BAY FEED	CONC	30400	<4	280	230	
	1625-1 8/10/00	XREC					
		DUP1					
		QID	60040240	10150235	55990239	55990242	
90852	GREEN BAY FEED	CONC	14400	<4	370	280	
	1715-1 8/10/00	XREC					
		DUP1		<4			
		QID	60040240	10150235	55990239	55990242	
BL#01	METHOD BLANK Q1	CONC	<100	<4	<55	<35	
		XREC					
		DUP1					
		QID	60040240	10150235	55990239	55990242	
BL#02	LCS Q1	CONC	10300	N/A	860	902	
		XREC	103.0		87.1	90.3	
		DUP1					
		QID	60040240	10150235	55990239	55990242	
BL#03	EXTERNAL QC Q1	CONC	20500	N/A	N/A	N/A	
		XREC	91.1				
		DUP1					
		QID	60040240	10150235	55990239	55990242	
TOC	Total Organic Carbon			TVS	Total Volatile Solids		
O&G	Oil and Grease			TRPH	Total Recoverable Petroleum Hydrocarbons		

INTERNAL QC DATA

Jobfile Number: 90838
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 17 AUG 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
90838	90838	100	O&G	88.5	87.4	1.3	55990239
90838	90838	104	TRPH	91.9	91.0	1.0	55990242

JOB FILE: 90053

DATE: 26 SE

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 4) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: WATER

RECEIPT DATE: 17 AU
COMPLETION DATE: 26 SE

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
PCB.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254
SAMP # DESCRIPTION						
90053 GREEN BAY CONC <0.27 <0.27 <0.27 0.27 <0.27 <0.27						
1400-1 8/10/00 SREC 118.8						
OVERFLOW DUPL						
QID 54830238	54830238	54830238	54830238	54830238	54830238	54830238
90054 GREEN BAY CONC <0.24 <0.24 <0.24 0.28 <0.24 <0.24						
1505-1 8/10/00 SREC						
OVERFLOW DUPL						
QID 54830238	54830238	54830238	54830238	54830238	54830238	54830238
90055 GREEN BAY CONC <0.25 <0.25 <0.25 0.25 J <0.25 <0.25						
1525 8/10/00 SREC						
OVERFLOW DUPL						
QID 54830238	54830238	54830238	54830238	54830238	54830238	54830238
90056 GREEN BAY CONC <0.24 <0.24 <0.24 0.18 J <0.24 <0.24						
1625-1 8/10/00 SREC						
OVERFLOW DUPL						
QID 54830238	54830238	54830238	54830238	54830238	54830238	54830238
90057 GREEN BAY CONC <0.25 <0.25 <0.25 0.22 J <0.25 <0.25						
1715-1 8/10/00 SREC						
OVERFLOW DUPL						
QID 54830238	54830238	54830238	54830238	54830238	54830238	54830238
90058 GREEN BAY FEED CONC <0.24 <0.24 <0.24 0.29 <0.24 <0.24						
1400-1 8/10/00 SREC						
DUPL						
QID 54830238	54830238	54830238	54830238	54830238	54830238	54830238
PCB-1016 PCB-1016			PCB-1221 PCB-1221			
PCB-1232 PCB-1232			PCB-1242 PCB-1242			
PCB-1248 PCB-1248			PCB-1254 PCB-1254			

JOL FILE: 90853

DATE: 26 SEP

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 4) *****

JOB DESCRIPTION: GREEN BAY - CLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005400-92300183

RECEIPT DATE: 17 AUG

TYPE OF SAMPLE: WATER

COMPLETION DATE: 26 SEP

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
PCB.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP #	DESCRIPTION						
90859	GREEN BAY FEED 1505-1 8/10/00	CONC <0.25 DREC DUPL DID 54830238	<0.25 54830238	<0.25 54830238	0.27 54830238	<0.25 54830238	<0.25 54830238
90860	GREEN BAY FEED 1525-1 8/10/00	CONC <0.20 DREC DUPL DID 54830238	<0.20 54830238	<0.20 54830238	0.27 54830238	<0.20 54830238	<0.20 54830238
90861	GREEN BAY FEED 1625-1 8/10/00	CONC <0.24 DREC DUPL DID 54830238	<0.24 54830238	<0.24 54830238	0.36 54830238	<0.24 54830238	<0.24 54830238
90862	GREEN BAY FEED 1715-1 8/10/00	CONC <0.24 DREC DUPL DID 54830238	<0.24 54830238	<0.24 54830238	0.41 54830238	<0.24 54830238	<0.24 54830238
BL001	METHOD BLANK 01	CONC <0.25 DREC DUPL DID 54830238	<0.25 54830238	<0.25 54830238	<0.25 54830238	<0.25 54830238	<0.25 54830238
BL002	LOG 01	CONC 0.25 DREC 99.6 DUPL DID 54830238	N/A 54830238	N/A 54830238	N/A 54830238	N/A 54830238	N/A 54830238

PCB-1016 PCB-1016
PCB-1232 PCB-1232
PCB-1248 PCB-1248

PCB-1221 PCB-1221
PCB-1242 PCB-1242
PCB-1254 PCB-1254

JOB FILE: 90853

DATE: 26-SE

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 4) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: WATER

RECEIPT DATE: 17 AUG
COMPLETION DATE: 26 SEP

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
PCB.....	PCB-1260	ToXLYL-S	DCLBP

SAMP # DESCRIPTION

90853	GREEN BAY 1400-1 8/10/00 OVERFLOW	CONC <0.27 SPEC 88.8 DUPL QID 54830238	60.0% 65.6 54830238	66.9% 65.4 54830238
90854	GREEN BAY 1505-1 8/10/00 OVERFLOW	CONC <0.24 SPEC DUPL QID 54830238	63.7% 54830238	66.9% 54830238
90855	GREEN BAY 1525 8/10/00 OVERFLOW	CONC <0.25 SPEC DUPL QID 54830238	62.8% 54830238	66.7% 54830238
90856	GREEN BAY 1625-1 8/10/00 OVERFLOW	CONC <0.24 SPEC DUPL QID 54830238	70.4% 54830238	70.0% 54830238
90857	GREEN BAY 1715-1 8/10/00 OVERFLOW	CONC <0.25 SPEC DUPL QID 54830238	65.8% 54830238	68.8% 54830238
90858	GREEN BAY FEED 1400-1 8/10/00	CONC <0.24 SPEC DUPL QID 54830238	62.4% 54830238	69.6% 54830238

PCB-1260 PCB-1260

DCLBP Decachlorodiphenyl (Surrogate (40-140 ug))

ToXLYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 ug

JOB FILE: 90033

DATE: 26 SEP

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: D056P0-92310183
TYPE OF SAMPLE: WATER

RECEIPT DATE: 17 AUG
COMPLETION DATE: 26 SEP

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
PPB.....	PCB-1260	TetKYL-S	DCLBP

SAMP # DESCRIPTION

90059	GREEN BAY FEED	COND	<0.23	66.9%	67.3%
	1305-1 8/10/00	SRUC			
		DUP1			
	QID	54830238	54830238	54830238	
90060	GREEN BAY FEED	COND	<0.20	65.0%	67.2%
	1525-1 8/10/00	SRUC			
		DUP1			
	QID	54830238	54830238	54830238	
90061	GREEN BAY FEED	COND	<0.24	81.4%	70.8%
	1625-1 8/10/00	SRUC			
		DUP1			
	QID	54830238	54830238	54830238	
90062	GREEN BAY FEED	COND	<0.24	77.2%	69.8%
	1715-1 8/10/00	SRUC			
		DUP1			
	QID	54830238	54830238	54830238	
BLW01	METHOD BLANK 01	COND	<0.25	67.5%	62.0%
		SRUC			
		DUP1			
	QID	54830238	54830238	54830238	
BLW02	LCS 01	COND	0.22	70.3%	67.8%
		SRUC	88.0		
		DUP1			
	QID	54830238	54830238	54830238	

PCB-1260 PCB-1260

DCLBP Decachlorobiphenyl(Surrogate (40-160 ug))

TetKYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-160 ug

INTERNAL QC DATA

Jobfile Number: 90853
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310181
Date Received: 17 AUG 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	QID
90853	90853	137	PCB-1016	118.8	129.2	8.4	54830238
90853	90853	143	PCB-1260	88.8	112.0	23.1	54830238
90853	90853	145	TclXYL-S	65.6	65.5	0.2	54830238
90853	90853	146	DCLBP	65.4	64.7	1.1	54830238

Job Description: <u>GREEN BAY - OLIN-ESTES</u>		Job File Number: <u>90853</u>	
ECB Quality Assurance Corrective Action Form			
Analysis:	<u>PCB</u>	Date:	<u>26-September-00</u>
Analyst:	<u>A. MORROW</u>	Instrument:	
<p>Problem: <u>Instrument integrated incorrectly because of low responses or concentrations.</u></p> <p>Sample Number(s) Affected: <u>90853-90852</u></p> <p>Recommended Corrective Action: <u>Re-integrate manually</u></p>			
<p>Corrective Action Taken By Analyst: <u>Same as above.</u></p> <p>Comments: <u>Re-integrated manually and reported values. If there are questions, please call.</u></p>			
Date Corrective Action Taken:		<u>26-September-00</u>	
Reviewed by:		<u>[Signature]</u>	

27 February 96

4/20/00/00/00/00/00

JOB FILE: 90852

DATE: 26 SEP

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 4) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PG-92310183
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 AUG
COMPLETION DATE: 26 SEP

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
PCB.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254
SAMP # DESCRIPTION						
90883 GREEN BAY CONC <0.25	<0.25	<0.25	<0.25	0.13 J	<0.25	<0.25
1400-2 8/10/00						
OVERFLOW						
DUPL						
OID 54830255	54830255	54830255	54830255	54830255	54830255	54830255
90884 GREEN BAY CONC <0.24	<0.24	<0.24	<0.24	0.12 J	<0.24	<0.24
1505-2 8/10/00						
OVERFLOW						
DUPL						
OID 54830255	54830255	54830255	54830255	54830255	54830255	54830255
90885 GREEN BAY CONC <0.25	<0.25	<0.25	<0.25	0.15 J	<0.25	<0.25
1525-2 8/10/00						
OVERFLOW						
DUPL						
OID 54830255	54830255	54830255	54830255	54830255	54830255	54830255
90886 GREEN BAY CONC <0.25	<0.25	<0.25	<0.25	0.21 J	<0.25	<0.25
1625-2 8/10/00						
OVERFLOW						
DUPL						
OID 54830255	54830255	54830255	54830255	54830255	54830255	54830255
90887 GREEN BAY CONC <0.26	<0.26	<0.26	<0.26	0.24 J	<0.26	<0.26
1715-2 8/10/00						
OVERFLOW						
DUPL						
OID 54830255	54830255	54830255	54830255	54830255	54830255	54830255
90888 GREEN BAY FEED CONC <0.23	<0.23	<0.23	<0.23	0.13 J	<0.23	<0.23
1400-2 8/10/00						
OVERFLOW						
DUPL						
OID 54830255	54830255	54830255	54830255	54830255	54830255	54830255
PCB-1016 PCB-1016						
PCB-1232 PCB-1232						
PCB-1248 PCB-1248						
PCB-1221 PCB-1221						
PCB-1242 PCB-1242						
PCB-1254 PCB-1254						

JOB FILE: V0573

DATE: 26 SEP

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 4) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-02510103
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 AUG
COMPLETION DATE: 26 SEP

COLUMN.....	1	2	3	4	5	6	
ANALYTE.....	137	138	139	140	141	142	
PPS.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	
SAMP #	DESCRIPTION						
90889	GREEN BAY FEED 1505-2 8/10/00	CONC <0.24 3REC DUPL DID 54830255	<0.24 54830255	<0.24 54830255	0.13 J 54830255	<0.24 54830255	<0.24 54830255
90890	GREEN BAY FEED 1525-2 8/10/00	CONC <0.24 3REC DUPL DID 54830255	<0.24 54830255	<0.24 54830255	<0.24 54830255	<0.24 54830255	
90891	GREEN BAY FEED 1625-2 8/10/00	CONC <0.24 3REC DUPL DID 54830255	<0.26 54830255	<0.26 54830255	0.21 J 54830255	<0.26 54830255	<0.26 54830255
90892	GREEN BAY FEED 1715-2 8/10/00	CONC <0.24 3REC DUPL DID 54830255	<0.24 54830255	<0.24 54830255	0.36 54830255	<0.24 54830255	<0.24 54830255
BLAD1	METROD BLAKE 01	CONC <0.25 3REC DUPL DID 54830255	<0.25 54830255	<0.25 54830255	<0.25 54830255	<0.25 54830255	<0.25 54830255
BLAD2	LCS 01	CONC 2.37 3REC 96.8 DUPL DID 54830255	N/A 54830255	N/A 54830255	N/A 54830255	N/A 54830255	N/A 54830255
PCB-1016	PCB-1016			PCB-1221	PCB-1221		
PCB-1232	PCB-1232			PCB-1242	PCB-1242		
PCB-1248	PCB-1248			PCB-1254	PCB-1254		

173-117-95P83

DATE: 26 SE

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 4) *****

JOB DESCRIPTION: GREEN BAY - CLIN-ESTEC
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: WATER

RECEIPT DATE: 21 AUG
COMPLETION DATE: 26 SEP

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
PPB.....	PCB-1260	TeLXYL-S	DCLBP

SAMP # DESCRIPTION

90863	GREEN BAY 1400-2 8/10/00 OVERFLOW	CONC <0.25 %REC DUPL QID 54830255	59.8%	67.2%	
90864	GREEN BAY 1505-2 8/10/00 OVERFLOW	CONC <0.24 %REC DUPL QID 54830255	45.6%	64.1%	
90865	GREEN BAY 1525-2 8/10/00 OVERFLOW	CONC <0.25 %REC 78.8 DUPL QID 54830255	54.3%	66.6%	
90866	GREEN BAY 1625-2 8/10/00 OVERFLOW	CONC <0.25 %REC DUPL QID 54830255	56.8%	63.6%	
90867	GREEN BAY 1715-2 8/10/00 OVERFLOW	CONC <0.26 %REC DUPL QID 54830255	53.2%	61.2%	
90868	GREEN BAY FRED 1400-2 8/10/00	CONC <0.23 %REC DUPL QID 54830255	56.8%	67.4%	

PCB-1260 PCB-1260

DCLBP Decachlorobiphenyl(Surrogate (40-140 US))

TeLXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(60-150 US

JOB FILE: 90885

DATE: 26 SEP

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 4) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CREM., PRESERVATIVE:

JOB NUMBER: 005400-92300183
TYPE OF SAMPLE: WATER

RECEIPT DATE: 21 AUG
COMPLETION DATE: 26 SEP

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
PCB.....	PCB-1260	TeIXYL-S	DCLBP

SAMP # DESCRIPTION

90889	GREEN BAY FEED	CONC	<0.24	29.6%	56.5%
	1505-2 8/10/00	PREC			
		DUP1			
		Q10	54830255	54830255	54830255
90890	GREEN BAY FEED	CONC	<0.24	38.5%	72.3%
	1525-2 8/10/00	PREC			
		DUP1			
		Q10	54830255	54830255	54830255
90891	GREEN BAY FEED	CONC	<0.26	35.1%	64.6%
	1625-2	PREC			
	8/10/00	DUP1			
		Q10	54830255	54830255	54830255
90892	GREEN BAY FEED	CONC	<0.24	35.6%	64.3%
	1715-2 8/10/00	PREC			
		DUP1			
		Q10	54830255	54830255	54830255
91801	METHOD BLANK 01	CONC	<0.25	64.1%	81.7%
		PREC			
		DUP1			
		Q10	54830255	54830255	54830255
91802	LCS 01	CONC	2.32	70.8%	74.6%
		PREC	92.8		
		DUP1			
		Q10	54830255	54830255	54830255

PCB-1260 PCB-1260

DCLBP Decachlorobiphenyl(Surrogate (40-140 W2))

TeIXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(160-150 W2

INTERNAL QC DATA

Jobfile Number: 90883
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 21 AUG 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
90883	90885	137	PCB-1016	88.4	82.8	6.5	54830255
90883	90885	143	PCB-1260	78.8	74.8	5.2	54830255
90883	90885	145	TclXYL-S	61.9	68.2	9.7	54830255
90883	90885	146	DCLBP	74.9	68.6	8.8	54830255

DATE: 13 MAR 1964

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 12) *****

JOB NUMBER: 0054P0-923101R3
TYPE OF SAMPLE: WATER

RECEIPT DATE: 21 AUG 1964
COMPLETION DATE: 13 MAR 1965

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
HOW.....	AS	CD	GR	CU	PR	NS

SAMP #	DESCRIPTION
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54

93893	GREEN BAY SUPPLY WATER 8/10/00 0930	CONC 0.005 WREC 128.0 DUPL 0.005 QID 01260271	<0.0002 93.2 <0.0002 01260271 HGA AUTH	0.005 90.6 0.005 01260271 HGA AUTH	0.003 80.2 0.003 01260271 HGA AUTH	<0.001 97.2 <0.001 01260271 HGA AUTH	<0.00020 94.0 <0.00020 04650255
90894	GREEN BAY FEED 1400-1 8/10/00	CONC 0.004 WREC DUPL QID 01260271	<0.0002 0.004 01260271 HGA AUTH	0.004 01260271 HGA AUTH	0.005 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.00020 04650255
90895	GREEN BAY FEED 1400-2 8/10/00	CONC 0.004 WREC DUPL QID 01260271	<0.0002 0.005 01260271 HGA AUTH	0.003 01260271 HGA AUTH	0.003 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.00020 04650255
90896	GREEN BAY FEED 1505-1 8/10/00	CONC 0.004 WREC DUPL QID 01260271	<0.0002 0.005 01260271 HGA AUTH	0.002 01260271 HGA AUTH	0.002 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.00020 04650255
93897	GREEN BAY FEED 1505-2 8/10/00	CONC 0.005 WREC DUPL QID 01260271	<0.0002 0.005 01260271 HGA AUTH	0.002 01260271 HGA AUTH	0.002 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.00020 04650255
90898	GREEN BAY FEED 1525-2 8/10/00	CONC 0.004 WREC DUPL QID 01260271	<0.0002 0.005 01260271 HGA AUTH	0.002 01260271 HGA AUTH	0.002 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.00020 04650255

AS	Arsenic
CR	Chromium
PB	Lead

Co	Cadmium
Cu	Copper
Hg	Mercury

JOB FILE: 90895

DATE: 13 MAR 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 12) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE: HNO3JOB NUMBER: 0054PD-92310103
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 AUG 0
COMPLETION DATE: 13 MAR 0

COLUMN.....	1	2	3	4	5	6	
ANALYTE.....	2	4	5	6	7	8	
PPM.....	AS	CD	CR	CU	PB	HQ	
SAMP #	DESCRIPTION						RC
90899	GREEN BAY FEED CONC 0.004	<0.0002	0.005	0.003	<0.001	<0.00020	
	1525-2 8/10/00						
	3REC						
	DUP1						
	Q10 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90903	GREEN BAY FEED CONC 0.004	<0.0002	0.004	0.002	<0.001	<0.00020	
	1625-1 8/10/00						
	3REC						
	DUP1						
	Q10 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90901	GREEN BAY FEED CONC 0.004	<0.0002	0.004	0.003	<0.001	<0.00020	
	1625-2 8/10/00						
	3REC 125.2	93.0	92.6	84.4	96.2	88.0	
	DUP1 0.004	<0.0002	0.004	0.003	<0.001	<0.00020	
	Q10 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90902	GREEN BAY FEED CONC 0.004	<0.0002	0.004	0.002	<0.001	<0.00020	
	1715-1 8/10/00						
	3REC						
	DUP1						
	Q10 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90905	GREEN BAY FEED CONC 0.004	<0.0002	0.005	0.003	<0.001	<0.00020	
	1715-2 8/10/00						
	3REC						
	DUP1						
	Q10 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90904	GREEN BAY CONC 0.004	<0.0002	0.005	0.002	<0.001	<0.00020	
	1400-1 8/10/00						
	OVERFLOW						
	DUP1						
	Q10 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
AS	Arsenic		CD	Cadmium			
CR	Chromium		CU	Copper			
PB	Lead		HQ	Mercury			

JOB FILE: 90893

DATE: 13 MAR

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 12) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE: HNO3JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 AUG
COMPLETION DATE: 13 MAR

COLUMN.....	1	2	3	4	5	6	
ANALYTE.....	2	4	5	6	7	8	
PPM.....	AS	CO	CR	CU	PB	HQ	
SAMP #	DESCRIPTION						
90905	GREEN BAY	CONC 0.004	<0.0002	0.005	0.002	<0.001	<0.00020
	1420-2 8/10/00	3REC					
	OVERFLOW	DUP1					
	OID 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90906	GREEN BAY	CONC 0.005	<0.0002	0.005	0.002	<0.001	<0.00020
	1505-1 8/10/00	3REC					
	OVERFLOW	DUP1					
	OID 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90907	GREEN BAY	CONC 0.004	<0.0002	0.005	0.002	<0.001	<0.00020
	1505-2 8/10/00	3REC					
	OVERFLOW	DUP1					
	OID 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90908	GREEN BAY	CONC 0.004	<0.0002	0.006	0.002	<0.001	<0.00020
	1525-1 8/10/00	3REC					
	OVERFLOW	DUP1					
	OID 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90909	GREEN BAY	CONC 0.003	<0.0002	0.005	0.002	<0.001	<0.00020
	1525-2 8/10/00	3REC 126.6	95.2	95.4	86.6	91.8	93.0
	OVERFLOW	DUP1 0.003	<0.0002	0.005	0.002	<0.001	<0.00020
	OID 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90910	GREEN BAY	CONC 0.004	<0.0002	0.006	0.003	<0.001	<0.00020
	1625-1 8/10/00	3REC					
	OVERFLOW	DUP1					
	OID 01260271	01260271	01260271	01260271	01260271	04650255	
		HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
AS	Arsenic		CO	Cadmium			
CR	Chromium		CU	Copper			
PB	Lead		HQ	Mercury			

JOB FILE: 90893

DATE: 13 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 12) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE: HNO3JOB NUMBER: 005493-92310183
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 AUG 1
COMPLETION DATE: 13 MAR 1

		COLUMN.....	1	2	3	4	5	6
		ANALYTE.....	2	4	5	6	7	8
		PPM.....	AS	CD	CR	CU	PB	HG
SAMP #	DESCRIPTION							
90911	GREEN BAY 1625-2 8/10/00 OVERFLOW	CONC 0.005 3REC DUPL DID 01260271	<0.0002 01260271 HGA AUTH	0.007 01260271 HGA AUTH	0.002 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.00020 04650255 	
90912	GREEN BAY 1715-1 8/10/00 OVERFLOW	CONC 0.004 3REC DUPL DID 01260271	<0.0002 01260271 HGA AUTH	0.006 01260271 HGA AUTH	0.002 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.00020 04650255 	
90913	GREEN BAY 1715-2 8/10/00 OVERFLOW	CONC 0.004 3REC DUPL DID 01260271	<0.0002 01260271 HGA AUTH	0.005 01260271 HGA AUTH	0.002 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.00020 04650255 	
BL#01	METHOD BLANK 01	CONC <0.002 3REC DUPL DID 01260271	<0.0002 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.001 01260271 HGA AUTH	<0.00020 04650255 	
BL#02	LCS 01	CONC 0.050 3REC 103.0 DUPL DID 01260271	0.0518 103.6 01260271 HGA AUTH	0.052 103.2 01260271 HGA AUTH	0.048 96.4 01260271 HGA AUTH	0.050 100.6 01260271 HGA AUTH	0.000765 102.0 04650255 	
BL#03	EXTERNAL QC 01	CONC 0.428 3REC 110.3 DUPL DID 01260271	0.174 104.2 01260271 HGA AUTH	0.522 105.9 01260271 HGA AUTH	0.086 99.5 01260271 HGA AUTH	0.619 102.3 01260271 HGA AUTH	0.000624 104.5 04650255 	
AS	Arsenic			CD	Cadmium			
CR	Chromium			CU	Copper			
PB	Lead			HG	Mercury			

JOB FILE: 90893

DATE: 13 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 12) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE: HNO3JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 AUG 1
COMPLETION DATE: 13 MAR 1

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	30
PPM.....	NI	SE	AG	ZN	BA	FE

SAMP # DESCRIPTION

R:

90893	GREEN BAY	CONC	0.014	0.092	<0.001	0.046	0.108	0.080
	SUPPLY WATER	WREC	83.6	131.0	81.8	83.0	94.4	8.8
	8/10/00 0930	DUP1	0.014	0.092	<0.001	0.045	0.107	0.077
		QID	01260271	01260271	01260271	01260271	01260271	01260271
		HGA AUTH			HGA AUTH			
90894	GREEN BAY FEED	CONC	0.009	0.002	<0.001	0.095	0.302	0.847
	1400-1 8/10/00	WREC						
		DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HGA AUTH			HGA AUTH			
90895	GREEN BAY FEED	CONC	0.010	0.002	<0.001	0.071	0.264	0.983
	1400-2 8/10/00	WREC						
		DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HGA AUTH			HGA AUTH			
90896	GREEN BAY FEED	CONC	0.009	0.002	<0.001	0.042	0.183	0.073
	1505-1 8/10/00	WREC						
		DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HGA AUTH			HGA AUTH			
90897	GREEN BAY FEED	CONC	0.010	0.002	<0.001	0.050	0.205	0.407
	1505-2 8/10/00	WREC						
		DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HGA AUTH			HGA AUTH			
90898	GREEN BAY FEED	CONC	0.010	0.002	<0.001	0.045	0.194	0.855
	1525-2 8/10/00	WREC						
		DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HGA AUTH			HGA AUTH			

NI Nickel
AG Silver
BA Barium

SE Selenium
ZN Zinc
FE Iron

JOB FILE: 90893

DATE: 13 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 12) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEM. PRESERVATIVE: HNO3JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 AUG 1
COMPLETION DATE: 13 MAR 1

		COLUMN.....	7	8	9	10	11	12
		ANALYTE.....	9	10	11	13	25	30
		PPM.....	NI	SE	AG	ZN	BA	FE
SAMP #	DESCRIPTION							
90899	GREEN BAY FEED	CONC	0.010	0.002	<0.001	0.038	0.160	0.425
	1525-2 8/10/00	XREC						
		DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HQA AUTH			HQA AUTH			
90900	GREEN BAY FEED	CONC	0.009	0.002	<0.001	0.022	0.127	0.021
	1625-1 8/10/00	XREC						
		DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HQA AUTH			HQA AUTH			
90901	GREEN BAY FEED	CONC	0.009	0.002	<0.001	0.019	0.111	<0.020
	1625-2 8/10/00	XREC	86.4	131.4	84.6	82.4	96.8	116.0
		DUP1	0.009	0.002	<0.001	0.018	0.110	<0.0020
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HQA AUTH			HQA AUTH			
90902	GREEN BAY FEED	CONC	0.010	0.002	<0.001	0.024	0.141	0.032
	1715-1 8/10/00	XREC						
		DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HQA AUTH			HQA AUTH			
90903	GREEN BAY FEED	CONC	0.010	0.002	<0.001	0.022	0.133	0.033
	1715-2 8/10/00	XREC						
		DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HQA AUTH			HQA AUTH			
90904	GREEN BAY	CONC	0.009	0.002	<0.001	0.062	0.246	0.111
	1400-1 8/10/00	XREC						
	OVERFLOW	DUP1						
		QID	01260271	01260271	01260271	01260271	01230269	01260271
		HQA AUTH			HQA AUTH			
NI	Nickel				SE	Selenium		
AG	Silver				ZN	Zinc		
BA	Barium				FE	Iron		

JOB FILE: 90893

DATE: 13 MAR

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 7 OF 12) *****

JOB DESCRIPTION: GREEN BAY - CLIN-ESTES
CHEM. PRESERVATIVE: RMDSJOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 AUG
COMPLETION DATE: 13 MAR

		COLUMN.....	7	8	9	10	11	12
		ANALYTE.....	9	10	11	13	25	30
		PPM.....	NI	SE	AG	ZN	BA	FE
SAMP #	DESCRIPTION							
90905	GREEN BAY 1400-2 8/10/00 OVERFLOW	CONC 0.008 3REC DUPL Q10 01260271 HGA AUTH	0.002		<0.001	0.077	0.263	0.053
			01260271	01260271	01260271	01260271	01230269	01260271
90906	GREEN BAY 1505-1 8/10/00 OVERFLOW	CONC 0.009 3REC DUPL Q10 01260271 HGA AUTH	0.002		<0.001	0.041	0.180	0.024
			01260271	01260271	01260271	01260271	01230269	01260271
90907	GREEN BAY 1505-2 8/10/00 OVERFLOW	CONC 0.009 3REC DUPL Q10 01260271 HGA AUTH	0.002		<0.001	0.046	0.197	0.153
			01260271	01260271	01260271	01260271	01230269	01260271
90908	GREEN BAY 1525-1 8/10/00 OVERFLOW	CONC 0.010 3REC DUPL Q10 01260271 HGA AUTH	0.002		<0.001	0.047	0.186	0.034
			01260271	01260271	01260271	01260271	01230269	01260271
90909	GREEN BAY 1525-2 8/10/00 OVERFLOW	CONC 0.009 3REC 88.8 DUPL 0.009 Q10 01260271 HGA AUTH	0.002 129.2 0.002		<0.001 0.2 <0.001	0.042 01.2 0.043	0.193 96.4 0.193	0.130 98.6 0.135
			01260271	01260271	01260271	01260271	01230269	01260271
90910	GREEN BAY 1525-1 8/10/00 OVERFLOW	CONC 0.010 3REC DUPL Q10 01260271 HGA AUTH	0.002		<0.001	0.021	0.121	0.033
			01260271	01260271	01260271	01260271	01230269	01260271
NI	Nickel			SE	Selenium			
AG	Silver			ZN	Zinc			
BA	Barium			FE	Iron			

JOB FILE: 90893

DATE: 13 MAR 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 8 OF 12) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
DISP. PRESERVATIVE: HNO3JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 MAR 0
COMPLETION DATE: 13 MAR 0

		COLUMN.....	7	8	9	10	11	12	
		ANALYTE.....	9	10	11	13	25	30	
		HW.....	NI	SE	AG	ZN	BA	FE	
SAMP #	DESCRIPTION								RI
90911	GREEN BAY 1625-2 8/10/00 OVERFLOW	CONC 0.010 %REC DUPL QID 01260271 HGA AUTH	0.002	<0.001	0.019	0.123	0.025		1
90912	GREEN BAY 1715-1 8/10/00 OVERFLOW	CONC 0.010 %REC DUPL QID 01260271 HGA AUTH	0.002	<0.001	0.022	0.134	<0.020		2
90913	GREEN BAY 1715-2 8/10/00 OVERFLOW	CONC 0.009 %REC DUPL QID 01260271 HGA AUTH	0.002	<0.001	0.019	0.126	<0.020		
BLW01	METHOD BLANK 01	CONC <0.001 %REC DUPL QID 01260271 HGA AUTH	<0.002	<0.001	<0.010	<0.001	<0.020		
BLW02	LCB 01	CONC 0.050 %REC 100.0 DUPL QID 01260271 HGA AUTH	0.051	0.050	0.050	0.048	1.94		
BLW03	EXTERNAL QC 01	CONC 2.54 %REC 102.0 DUPL QID 01260271 HGA AUTH	1.53	0.526	1.27	0.766	1.27		
NI	Nickel			SE	Selenium				
AG	Silver			ZN	Zinc				
BA	Barium			FE	Iron				

JOB FILE: 90893

DATE: 13 MAR 01

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 9 OF 12) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE: HNO3

JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: WATER

RECEIPT DATE: 21 AUG 01
COMPLETION DATE: 13 MAR 01

COLUMN.....	13	14	15
ANALYTE.....	31	32	33
PPM.....	MG	MM	MO

SAMP # DESCRIPTION

90893	GREEN BAY	CONC	75.6	3.03	<0.001
	SUPPLY WATER	WREC	94.8	96.2	106.0
	8/10/00 0930	DUPL	76.1	3.05	<0.001
		OID	01230269	01230269	01260271

90894	GREEN BAY FEED	CONC	77.1	1.40	0.005
	1400-1 8/10/00	WREC			
		DUPL			
		OID	01230269	01230269	01260271

90895	GREEN BAY FEED	CONC	74.9	1.40	0.005
	1400-2 8/10/00	WREC			
		DUPL			
		OID	01230269	01230269	01260271

90896	GREEN BAY FEED	CONC	77.1	1.83	0.003
	1505-1 8/10/00	WREC			
		DUPL			
		OID	01230269	01230269	01260271

90897	GREEN BAY FEED	CONC	76.0	1.89	0.003
	1505-2 8/10/00	WREC			
		DUPL			
		OID	01230269	01230269	01260271

90898	GREEN BAY FEED	CONC	76.2	1.84	0.002
	1525-2 8/10/00	WREC			
		DUPL			
		OID	01230269	01230269	01260271

MG	Magnesium	MM	Manganese
MO	Molybdenum		

JOB FILE: 90893

DATE: 13 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 10 OF 12) *****

JOB DESCRIPTION: GREEN BAY - CLIN-ESTES
CHEM. PRESERVATIVE: HNO3

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: WATER

RECEIPT DATE: 21 AUG 1
COMPLETION DATE: 13 MAR 1

COLUMN.....	13	14	15
ANALYTE.....	31	32	33
PPM.....	MG	MN	MO

SAMP # DESCRIPTION

90899	GREEN BAY FEED	CONC	77.9	1.97	0.002
	1525-2 8/10/00	WREC			
		DUP1			
		Q10	01230269	01230269	01260271

90900	GREEN BAY FEED	CONC	77.3	1.99	0.003
	1625-1 8/10/00	WREC			
		DUP1			
		Q10	01230269	01230269	01260271

90901	GREEN BAY FEED	CONC	77.3	1.30	0.003
	1625-2 8/10/00	WREC	94.4	96.2	108.0
		DUP1	76.9	1.29	0.003
		Q10	01230269	01230269	01260271

90902	GREEN BAY FEED	CONC	75.7	1.41	0.002
	1715-1 8/10/00	WREC			
		DUP1			
		Q10	01230269	01230269	01260271

90903	GREEN BAY FEED	CONC	78.0	1.46	0.002
	1715-2 8/10/00	WREC			
		DUP1			
		Q10	01230269	01230269	01260271

90904	GREEN BAY	CONC	78.6	1.72	0.005
	1400-1 8/10/00	WREC			
	OVERFLOW	DUP1			
		Q10	01230269	01230269	01260271

MG Magnesium
MO Molybdenum

MN Manganese

JOB FILE: 90893

DATE: 13 MAR

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 11 OF 12) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEM. PRESERVATIVE: HNO3

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: WATER

RECEIPT DATE: 21 AUG
COMPLETION DATE: 15 MAR

COLUMN.....	13	14	15
ANALYTE.....	31	32	33
PPM.....	MG	MM	MO

SAMP # DESCRIPTION

90905	GREEN BAY	CONC	78.1	1.68	0.006
	1400-2 8/10/00	WREC			
	OVERFLOW	DUPL			
		DID	01230269	01230269	01260271
90906	GREEN BAY	CONC	78.8	1.31	0.003
	1505-1 8/10/00	WREC			
	OVERFLOW	DUPL			
		DID	01230269	01230269	01260271
90907	GREEN BAY	CONC	78.9	1.81	0.003
	1505-2 8/10/00	WREC			
	OVERFLOW	DUPL			
		DID	01230269	01230269	01260271
90908	GREEN BAY	CONC	78.9	1.76	0.002
	1525-1 8/10/00	WREC			
	OVERFLOW	DUPL			
		DID	01230269	01230269	01260271
90909	GREEN BAY	CONC	78.9	1.83	0.002
	1525-2 8/10/00	WREC	92.4	95.8	110.0
	OVERFLOW	DUPL	79.2	1.84	0.002
		DID	01230269	01230269	01260271
90910	GREEN BAY	CONC	77.5	1.59	0.003
	1625-1 8/10/00	WREC			
	OVERFLOW	DUPL			
		DID	01230269	01230269	01260271

MG Magnesium
MO Molybdenum

MM Manganese

JOB FILE: 90895

DATE: 13 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 12 OF 12) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEM. PRESERVATIVE: HMO3JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: WATERRECEIPT DATE: 21 AUG 1
COMPLETION DATE: 13 MAR 1

COLUMN.....	13	14	15
ANALYTE.....	31	32	33
PPM.....	MG	MG	MG

SAMP # DESCRIPTION

90911	GREEN BAY 1625-2 8/10/00 OVERFLOW	CONC 77.6 SREC DUPL OIO 01230269	1.63 01230269	0.003 01260271	
90912	GREEN BAY 1715-1 8/10/00 OVERFLOW	CONC 76.7 SREC DUPL OIO 01230269	1.31 01230269	0.003 01260271	
90913	GREEN BAY 1715-2 8/10/00 OVERFLOW	CONC 77.9 SREC DUPL OIO 01230269	1.38 01230269	0.003 01260271	
BL#01	METHOD BLANK 01	CONC <0.100 SREC DUPL OIO 01230269	<0.001 01230269	<0.001 01260271	
BL#02	LCS 01	CONC 4.70 SREC 96.0 DUPL OIO 01230269	0.480 96.0 01230269	0.051 102.2 01260271	
BL#03	EXTERNAL QC 01	CONC 34.6 SREC 98.3 DUPL OIO 01230269	0.566 99.1 01230269	0.568 103.6 01260271	

MG Magnesium
MO Molybdenum

MN Manganese

JOB TITLE: 90914

DATE: 03 OCT 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6) *****

JOB DESCRIPTION: GREEN BAY - CLIN-ESTES
(HTR. PRESERVATIVE)JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 21 AUG 0
COMPLETION DATE: 3 OCT 0

COLUMN	1	2	3	4	5	6
ANALYTE	137	138	139	140	141	142
UQ/KG	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP #	DESCRIPTION	CONC	1	2	3	4	5	6
90914	GREEN BAY 1400-1 8/10/00 OVERFLOW	99.6	<18.0	<18.0	<18.0	3824 ✓	<18.0	<18.0
	DUPL							
	QID	54830255	54830255	54830255	54830255	54830255	54830255	54830255
90915	GREEN BAY 1525-1 8/10/00 OVERFLOW	99.6	<20.3	<20.3	<20.3	4376	<20.3	<20.3
	DUPL							
	QID	54830255	54830255	54830255	54830255	54830255	54830255	54830255
90916	GREEN BAY 1525-1 8/10/00 OVERFLOW	99.6	<18.0	<18.0	<18.0	3859	<18.0	<18.0
	DUPL							
	QID	54830255	54830255	54830255	54830255	54830255	54830255	54830255
90917	GREEN BAY 1625-1 8/10/00 OVERFLOW	99.6	<22.9	<22.9	<22.9	4719 ✓	<22.9	<22.9
	DUPL							
	QID	54830255	54830255	54830255	54830255	54830255	54830255	54830255
90918	GREEN BAY 1715-1 8/10/00 OVERFLOW	99.6	<20.6	<20.6	<20.6	4482 ✓	<20.6	<20.6
	DUPL							
	QID	54830255	54830255	54830255	54830255	54830255	54830255	54830255
90919	GREEN BAY 1400-2 8/10/00 OVERFLOW	99.6	<19.0	<19.0	<19.0	3823 ✓	<19.0	<19.0
	DUPL							
	QID	54830255	54830255	54830255	54830255	54830255	54830255	54830255

PCB-1016 PCB-1016
PCB-1232 PCB-1232
PCB-1248 PCB-1248PCB-1221 PCB-1221
PCB-1242 PCB-1242
PCB-1254 PCB-1254not
official

JOB FILE: 00914

DATE: 03 OCT 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEN. PRESERVATIVE:JOB NUMBER: 0054PD-92510185
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 21 AUG 1
COMPLETION DATE: 3 OCT 1

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
UG/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-124B	PCB-1254

SAMP # DESCRIPTION

SAMP #	DESCRIPTION	COND	1	2	3	4	5	6
90920	GREEN BAY 1505-2 8/10/00 OVERFLOW	COND	<20.4	<20.4	<20.4	4659 /	<20.4	<20.4
		WREC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255
90921	GREEN BAY 1525-2 8/10/00 OVERFLOW	COND	<16.7	<16.7	<16.7	3256 /	<16.7	<16.7
		WREC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255
90922	GREEN BAY 1625-2 8/10/00 OVERFLOW	COND	<21.5	<21.5	<21.5	4243 /	<21.5	<21.5
		WREC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255
90923	GREEN BAY 1715-2 8/10/00 OVERFLOW	COND	<16.1	<16.1	<16.1	3138 /	<16.1	<16.1
		WREC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255
90924	GREEN BAY FEED 1400-1 8/10/00	COND	<18.4	<18.4	<18.4	3446	<18.4	<18.4
		WREC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255
90925	GREEN BAY FEED 1505-2 8/10/00	COND	<15.5	<15.5	<15.5	2953	<15.5	<15.5
		WREC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255

PCB-1016 PCB-1016
PCB-1232 PCB-1232
PCB-124B PCB-124B

PCB-1221 PCB-1221
PCB-1242 PCB-1242
PCB-1254 PCB-1254

JOB FILE: 90956

DATE: 03 OCT 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHDR, PRESERVATIVE:

JOB NUMBER: 0054PO-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG 0
COMPLETION DATE: 3 OCT 0

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
UG/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP #	DESCRIPTION							
90926	GREEN BAY FEED 1525-2 8/10/00	CONC	<15.9	<15.9	<15.9	3216	<15.9	<15.9
		%REC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255
90927	GREEN BAY FEED 1625-2 8/10/00	CONC	<16.1	<16.1	<16.1	2896	<16.1	<16.1
		%REC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255
90928	GREEN BAY FEED 1715-2 8/10/00	CONC	<15.8	<15.8	<15.8	2869	<15.8	<15.8
		%REC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255
BL#01	METHOD BLANK 01	CONC	<6.25	<6.25	<6.25	<6.25	<6.25	<6.25
		%REC						
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255
BL#02	LCS 01	CONC	0.62	N/A	N/A	N/A	N/A	N/A
		%REC	98.6					
		DUPL						
		QID	54830255	54830255	54830255	54830255	54830255	54830255

PCB-1016 PCB-1016
PCB-1232 PCB-1232
PCB-1248 PCB-1248

PCB-1221 PCB-1221
PCB-1242 PCB-1242
PCB-1254 PCB-1254

JOB FILE: V0914

DATE: 03 OCT

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
 CHEN. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
 TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG
 COMPLETION DATE: 3 OCT

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
SG/KG.....	PCB-1260	TeLXyl-S	DCLBP

SAMP # DESCRIPTION

R

90914	GREEN BAY 1450-1 8/10/00 OVERFLOW	CONC 123 %REC 109.2 DUPL O/D 54830255	107% 126 54830255	105% 149 54830255
90915	GREEN BAY 1505-1 8/10/00 OVERFLOW	CONC 119 %REC DUPL O/D 54830255	93.0% 54830255	130% 54830255
90916	GREEN BAY 1525-1 8/10/00 OVERFLOW	CONC 113 %REC DUPL O/D 54830255	106% 54830255	130% 54830255
90917	GREEN BAY 1625-1 8/10/00 OVERFLOW	CONC 64.1 %REC DUPL O/D 54830255	106% 54830255	112% 54830255
90918	GREEN BAY 1715-1 8/10/00 OVERFLOW	CONC 106 %REC DUPL O/D 54830255	98.3% 54830255	116% 54830255
90919	GREEN BAY 1400-2 8/10/00 OVERFLOW	CONC 92.9 %REC DUPL O/D 54830255	111% 54830255	126% 54830255

PCB-1260 PCB-1260
 DCLBP Decachlorobiphenyl(Surrogate (60-150 MS))

TeLXyl-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 MS)

JOB FILE: 90914

DATE: 03 OCT 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG 1
COMPLETION DATE: 3 OCT 1

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
UG/KG.....	PCB-1260	TC1XYL-S	OCLBP

SAMP # DESCRIPTION

SAMP #	DESCRIPTION	CONC	112%	121%
90920	GREEN BAY 1505-2 8/10/00 OVERFLOW	113 3REC DUPL Q10 54830255	112% 54830255	121% 54830255
90921	GREEN BAY 1525-2 8/10/00 OVERFLOW	158 3REC DUPL Q10 54830255	106% 54830255	125% 54830255
90922	GREEN BAY 1625-2 8/10/00 OVERFLOW	103 3REC DUPL Q10 54830255	110% 54830255	122% 54830255
90923	GREEN BAY 1715-2 8/10/00 OVERFLOW	107 3REC DUPL Q10 54830255	107% 54830255	139% 54830255
90924	GREEN BAY FEED 1400-1 8/10/00	90.6 3REC DUPL Q10 54830255	105% 54830255	122% 54830255
90925	GREEN BAY FEED 1505-2 8/10/00	116 3REC DUPL Q10 54830255	102% 54830255	104% 54830255

PCB-1260 PCB-1260
OCLBP Decachlorobiphenyl(Surrogate (60-150 WS))

TC1XYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS)

JOB FILE: 90914

DATE: 03 OCT 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 6) *****

JOB DESCRIPTION: GREEN BAY - DLM-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92510183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG 1
COMPLETION DATE: 3 OCT 1

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
UG/KG.....	PCB-1260	TeLXYL-8	DCLBP

SAMP # DESCRIPTION

90926	GREEN BAY FEED 1525-2 8/10/00	COND 113 %REC DUPL QID 54830255	116%	123%
90927	GREEN BAY FEED 1625-2 8/10/00	COND 138 %REC DUPL QID 54830255	110%	120%
90928	GREEN BAY FEED 1715-2 8/10/00	COND 103 %REC DUPL QID 54830255	109%	97.8%
BL#01	METHOD BLANK 01	COND <6.25 %REC DUPL QID 54830255	86.3%	74.2%
BL#02	LCS 01	COND 0.61 %REC 97.2 DUPL QID 54830255	87.2%	72.3%

PCB-1260 PCB-1260

DCLBP Decachlorobiphenyl(Surrogate (60-150 WS))

TeLXYL-8 2,4,5,6-Tetrachloro-n-xylene(Surrogate(40-140 WS))

INTERNAL QC DATA

Jobfile Number: 90914
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 21 AUG 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
90914	90914	137	PCB-1016	99.6	44.8	75.9	54830255
90914	90914	143	PCB-1260	109.2	115.6	5.7	54830255
90914	90914	145	TelXYL-S	126	119	5.7	54830255
90914	90914	146	DCLBP	149	154	3.3	54830255

JOB FILE: 90929

DATE: 14 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 9) *****

 3/14/01
 JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
 CHEM. PRESERVATIVE:

 JOB NUMBER: 0354PD-92510183
 TYPE OF SAMPLE: SEDIMENT

 RECEIPT DATE: 21 AUG 1
 COMPLETION DATE: 14 MAR 1

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
MG/KG.....	AS	CD	CR	CU	PB	HQ

SAMP #	DESCRIPTION							
90929	GREEN BAY	CDWC 3.30	0.820	42.3	50.9	57.0	1.20	
	1400-1 8/10/00	SRFC 93.8	95.6	98.6	89.0	102.4	96.0	
	OVERFLOW	DUPL 3.28	0.800	41.6	50.3	56.1	1.18	
		QID 01260270	01260270	01260270	01260270	01260270	04650263	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90930	GREEN BAY	CDWC 3.29	0.869	53.7	56.0	64.0	1.51	
	1505-1 8/10/00	SRFC						
	OVERFLOW	DUPL						
		QID 01260270	01260270	01260270	01260270	01260270	04650263	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90931	GREEN BAY	CDWC 2.69	0.648	37.5	49.7	48.6	1.22	
	1525-1 8/10/00	SRFC						
	OVERFLOW	DUPL						
		QID 01260270	01260270	01260270	01260270	01260270	04650263	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90932	GREEN BAY	CDWC 3.70	0.960	57.6	52.5	69.2	1.44	
	1625-1 8/10/00	SRFC						
	OVERFLOW	DUPL						
		QID 01260270	01260270	01260270	01260270	01260270	04650263	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90933	GREEN BAY	CDWC 3.50	0.840	52.9	50.5	61.4	1.21	
	1715-1 8/10/00	SRFC						
	OVERFLOW	DUPL						
		QID 01260270	01260270	01260270	01260270	01260270	04650263	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90934	GREEN BAY	CDWC 4.00	0.840	49.5	53.4	61.4	1.36	
	1400-2 8/10/00	SRFC						
	OVERFLOW	DUPL						
		QID 01260270	01260270	01260270	01260270	01260270	04650263	
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
AS	Arsenic			CD	Cadmium			
CR	Chromium			CU	Copper			
PB	Lead			HQ	Mercury			

JOB FILE: 90929

DATE: 14 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PO-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 21 AUG 1
COMPLETION DATE: 14 MAR 1

COLUMN.....	1	2	3	4	5	6	
ANALYTE.....	2	4	5	6	7	8	
MG/KG.....	AS	CD	CR	CU	PB	HG	
SAMP #	DESCRIPTION						R
90935	GREEN BAY 1505-2 8/10/00 OVERFLOW	CONC 3.50 3REC DUPL OID 01260270	0.879 01260270 HGA AUTH	48.2 01260270 HGA AUTH	53.7 01260270 HGA AUTH	64.6 01260270 HGA AUTH	1.52 04650263
90936	GREEN BAY 1525-2 8/10/00 OVERFLOW	CONC 3.09 3REC DUPL OID 01260270	0.727 01260270 HGA AUTH	42.8 01260270 HGA AUTH	42.6 01260270 HGA AUTH	54.3 01260270 HGA AUTH	1.30 04650263
90937	GREEN BAY 1625-2 8/10/00 OVERFLOW	CONC 3.89 3REC 93.8 DUPL 3.89 OID 01260270	0.937 93.8 0.937 01260270 HGA AUTH	59.3 92.8 59.3 01260270 HGA AUTH	52.4 83.6 52.5 01260270 HGA AUTH	67.0 96.0 67.8 01260270 HGA AUTH	1.31 102.7 1.33 04650263
90938	GREEN BAY 1715-2 8/10/00 OVERFLOW	CONC 2.89 3REC DUPL OID 01260270	0.688 01260270 HGA AUTH	43.7 01260270 HGA AUTH	38.3 01260270 HGA AUTH	48.4 01260270 HGA AUTH	0.870 04650263
90939	GREEN BAY FEED 1400-2 8/10/00	CONC 3.29 3REC DUPL OID 01260270	0.738 01260270 HGA AUTH	44.3 01260270 HGA AUTH	46.5 01260270 HGA AUTH	50.8 01260270 HGA AUTH	1.11 04650263
90940	GREEN BAY FEED 1505-2 8/10/00	CONC 2.70 3REC DUPL OID 01260270	0.580 01260270 HGA AUTH	37.7 01260270 HGA AUTH	38.2 01260270 HGA AUTH	41.6 01260270 HGA AUTH	1.30 04650263
AS	Arsenic			CD	Cadmium		
CR	Chromium			CU	Copper		
PB	Lead			HG	Mercury		

JOB FILE: 90929

DATE: 14 MAR

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
PRESERVATIVE:JOB NUMBER: 0054P0-92310185
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 21 AUG
COMPLETION DATE: 14 MAR

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
PG/XG.....	AS	CD	CR	CU	PG	HS

SAMP # DESCRIPTION

8

90941	GREEN BAY FEED	CCNC	2.30	0.568	31.7	34.6	40.6	0.880
	1525-2 8/10/00	NRFC						
		DUP						
	OTD	01260270	01260270	01260270	01260270	01260270	01260270	04650263
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90942	GREEN BAY FEED	CCNC	2.39	0.599	36.9	33.7	46.4	0.836
	1625-2 8/10/00	NRFC						
		DUP						
	OTD	01260270	01260270	01260270	01260270	01260270	01260270	04650263
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
90943	GREEN BAY FEED	CCNC	2.50	0.509	36.0	31.4	39.7	0.840
	1715-2 8/10/00	NRFC						
		DUP						
	OTD	01260270	01260270	01260270	01260270	01260270	01260270	04650263
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
BL#01	METHCO BLANK 01	CCNC	<0.200	<0.020	<0.100	<0.100	<0.100	<0.040
		NRFC						
		DUP						
	OTD	01260270	01260270	01260270	01260270	01260270	01260270	04650263
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
BL#02	LCS 01	CCNC	9.18	4.80	21.5	19.7	10.9	0.668
		NRFC	91.8	96.0	107.5	98.5	109.0	90.7
		DUP						
	OTD	01260270	01260270	01260270	01260270	01260270	01260270	04650263
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		
BL#03	EXTERNAL QC 01	CCNC	81.5	56.7	19.3	94.8	1170	0.055
		NRFC						91.7
		DUP						
	OTD	01260270	01260270	01260270	01260270	01260270	01260270	04650263
			HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		

AS Arsenic
CR Chromium
PG Lead

CD Cadmium
CU Copper
PG Mercury

JOB FILE: 90929

DATE: 14 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG 1
COMPLETION DATE: 14 MAR 1

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	30
MG/KG.....	NI	SE	AG	ZN	BA	FE

SAMP # DESCRIPTION

90929	GREEN BAY	CONC	18.7	0.600	0.403	115	76.1	16800
	1400-1 8/10/00	3REC	94.4	84.4	96.8	94.0	101.6	114.0
	OVERFLOW	DUP	18.3	0.600	0.403	115	75.6	16930
		OTD	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90930	GREEN BAY	CONC	21.3	0.799	0.699	125	90.0	21100
	1505-1 8/10/00	3REC						
	OVERFLOW	DUP						
		OTD	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90931	GREEN BAY	CONC	15.5	0.498	0.399	94.6	60.7	14780
	1525-1 8/10/00	3REC						
	OVERFLOW	DUP						
		OTD	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90932	GREEN BAY	CONC	19.9	0.700	0.530	132	88.6	18200
	1625-1 8/10/00	3REC						
	OVERFLOW	DUP						
		OTD	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90933	GREEN BAY	CONC	20.3	0.600	0.580	125	84.0	18900
	1715-1 8/10/00	3REC						
	OVERFLOW	DUP						
		OTD	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90934	GREEN BAY	CONC	20.7	0.800	0.500	124	85.9	20400
	1400-2 8/10/00	3REC						
	OVERFLOW	DUP						
		OTD	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			

NI	Nickel	SE	Selenium
AG	Silver	ZN	Zinc
BA	Barium	FE	Iron

JOB FILE: 90929

DATE: 14 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLTH-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 905490-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 21 AUG 1
COMPLETION DATE: 14 MAR 1

COLUMN.....	7	8	9	10	11	12		
ANALYTE.....	9	10	11	13	25	30		
MG/KG.....	NI	SE	AG	ZN	BA	FE		
SAMP #	DESCRIPTION						R	
90935	GREEN BAY	CONC	19.9	0.699	0.500	122	60.2	17100
	1505-2 8/10/00	WREC						
	OVERFLOW	DUP1						
		Q10	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90936	GREEN BAY	CONC	17.1	0.498	0.498	103	71.0	17300
	1525-2 8/10/00	WREC						
	OVERFLOW	DUP1						
		Q10	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90937	GREEN BAY	CONC	20.4	0.797	0.598	134	96.0	19800
	1625-2 8/10/00	WREC	90.8	83.0	95.4	94.0	91.6	79.0
	OVERFLOW	DUP1	20.5	0.797	0.598	130	89.5	19200
		Q10	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90938	GREEN BAY	CONC	16.0	0.498	0.698	96.8	67.0	15800
	1715-2 8/10/00	WREC						
	OVERFLOW	DUP1						
		Q10	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90939	GREEN BAY FEED	CONC	18.6	0.599	0.499	107	77.4	19300
	1400-2 8/10/00	WREC						
		DUP1						
		Q10	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
90940	GREEN BAY FEED	CONC	15.2	0.600	0.400	80.5	61.9	15100
	1505-2 8/10/00	WREC						
		DUP1						
		Q10	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH			HGA AUTH			
NI	Nickel			SE	Selenium			
AG	Silver			ZN	Zinc			
BA	Barium			FE	Iron			

JOB FILE: 90929

DATE: 14 MAR

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTER
CHEM. PRESERVATIVE:JOB NUMBER: 0054PS-92310185
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 21 AUG
COMPLETION DATE: 14 MAR

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	30
MS/KG.....	NI	SE	AG	ZN	BA	FE

SAMP # DESCRIPTION

R

90941	GREEN BAY FEED	CONC	13.9	0.400	0.300	77.8	50.6	12600
	1525-2 8/10/00	AREC						
		DUP						
		QID	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH		HGA AUTH				

90942	GREEN BAY FEED	CONC	13.4	0.399	0.399	84.5	57.1	12500
	1625-2 8/10/00	AREC						
		DUP						
		QID	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH		HGA AUTH				

90943	GREEN BAY FEED	CONC	13.7	0.400	0.300	76.3	56.0	13500
	1715-2 8/10/00	AREC						
		DUP						
		QID	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH		HGA AUTH				

BL001	METHOD BLANK 01	CONC	<0.100	<0.200	<0.100	<1.00	<0.100	<1.50
		AREC						
		DUP						
		QID	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH		HGA AUTH				

BL002	LCS 01	CONC	20.3	4.00	4.80	42.5	50.6	110
		AREC	101.5	79.8	95.0	85.0	101.2	110.0
		DUP						
		QID	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH		HGA AUTH				

BL003	EXTERNAL QC 01	CONC	15.5	1.39	4.48	285	194	19500
		AREC						
		DUP						
		QID	01260270	01260270	01260270	01260270	01260270	01230271
		HGA AUTH		HGA AUTH				

NI	Nickel	SE	Selenium
AG	Silver	ZN	Zinc
BA	Barium	FE	Iron

JOB FILE: 90929

DATE: 14 MAR 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 7 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG 1
COMPLETION DATE: 14 MAR 1

COLUMN.....	13	14	15
ANALYTE.....	31	32	33
NO/KG.....	NO	NN	NO

SAMP # DESCRIPTION

W

90929	GREEN BAY	CONC	20300	410	0.400
	1400-1 8/10/00	3REC	94.8	99.8	106.2
	OVERFLOW	DUP1	20300	413	0.400
		DID	01230271	01230271	01230270

90930	GREEN BAY	CONC	19000	433	0.499
	1505-1 8/10/00	3REC			
	OVERFLOW	DUP1			
		DID	01230271	01230271	01230270

90931	GREEN BAY	CONC	17800	304	0.299
	1525-1 8/10/00	3REC			
	OVERFLOW	DUP1			
		DID	01230271	01230271	01230270

90932	GREEN BAY	CONC	16100	359	0.400
	1625-1 8/10/00	3REC			
	OVERFLOW	DUP1			
		DID	01230271	01230271	01230270

90933	GREEN BAY	CONC	17000	372	0.400
	1715-1 8/10/00	3REC			
	OVERFLOW	DUP1			
		DID	01230271	01230271	01230270

90934	GREEN BAY	CONC	20000	418	0.500
	1400-2 8/10/00	3REC			
	OVERFLOW	DUP1			
		DID	01230271	01230271	01230270

NO Magnesium
NO Molybdenum

NN Manganese

JOB FILE: 90929

DATE: 14 MAR 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 8 OF 9) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 21 AUG 0
COMPLETION DATE: 14 MAR 0

COLUMN.....	13	14	15
ANALYTE.....	31	32	33
MG/KG.....	MG	MM	MO

SAMP #	DESCRIPTION				RD
90935	GREEN BAY 1505-2 8/10/00 OVERFLOW	CONC 18900 WREC DUPL QID 01230271	356 01230271	0.400 01230270	
90936	GREEN BAY 1525-2 8/10/00 OVERFLOW	CONC 17900 WREC DUPL QID 01230271	352 01230271	0.299 01230270	
90937	GREEN BAY 1625-2 8/10/00 OVERFLOW	CONC 16100 WREC 92.0 DUPL 15600 QID 01230271	356 96.8 344 01230271	0.398 103.8 0.398 01230270	
90938	GREEN BAY 1715-2 8/10/00 OVERFLOW	CONC 14300 WREC DUPL QID 01230271	272 01230271	0.399 01230270	1
90939	GREEN BAY FEED 1608-2 8/10/00	CONC 18900 WREC DUPL QID 01230271	376 01230271	0.499 01230270	1
90940	GREEN BAY FEED 1505-2 8/10/00	CONC 16100 WREC DUPL QID 01230271	270 01230271	0.400 01230270	12
MG	Magnesium		MM	Manganese	
MO	Molybdenum				

JOB FILE: 90929

DATE: 14 MAR

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 9 OF 9) *****

JOB DESCRIPTION: GREEN BAY - DLEN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG
COMPLETION DATE: 14 MAR

COLUMN.....	13	14	15
ANALYTE.....	31	32	33
MG/KG.....	MG	MN	MO

SAMP # DESCRIPTION

90941	GREEN BAY FEED	CONC	15900		260		0.300	
	1525-2 8/10/00	%REC						
		DUPL						
		QID	01230271		01230271		01230270	
90942	GREEN BAY FEED	CONC	12400		253		0.299	
	1625-2 8/10/00	%REC						
		DUPL						
		QID	01230271		01230271		01230270	
90943	GREEN BAY FEED	CONC	12700		228		0.300	
	1715-2 8/10/00	%REC						
		DUPL						
		QID	01230271		01230271		01230270	
BL#01	METHOD BLANK 01	CONC	<10.0		<0.100		<0.100	
		%REC						
		DUPL						
		QID	01230271		01230271		01230270	
BL#02	LCS 01	CONC	N/A		20.4		N/A	
		%REC			102.0			
		DUPL						
		QID	01230271		01230271		01230270	
BL#03	EXTERNAL QC 01	CONC	6670		495		0.498	
		%REC						
		DUPL						
		QID	01230271		01230271		01230270	

MG Magnesium
MO Molybdenum

MN Manganese

FILE: 9044

DATE: 07 SEP

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 3) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG
COMPLETION DATE: 7 SEP

COLUMN.....	1	2	3	4
ANALYTE.....	BS	95	100	104
MG/KG.....	100	TVS	OSG	TRPH

SAMP # DESCRIPTION

90944	GREEN BAY 1400-1 B/10/00 OVERFLOW	CONC 37100 %REC DUPL 39680 QID 60790249	<4 10150235	240 88.1 55990240	200 85.8 55990242
90945	GREEN BAY 1505-1 B/10/00 OVERFLOW	CONC 50300 %REC DUPL QID 60790249	<4 10150235	310 55990240	230 55990242
90946	GREEN BAY 1525-1 B/10/00 OVERFLOW	CONC 42100 %REC DUPL QID 60790249	<4 10150235	490 55990240	330 55990242
90947	GREEN BAY 1625-1 B/10/00 OVERFLOW	CONC 50500 %REC DUPL QID 60790249	<4 10150235	330 55990240	420 55990242
90948	GREEN BAY 1715-1 B/10/00 OVERFLOW	CONC 39400 %REC DUPL QID 60790249	<4 10150235	570 55990240	450 55990242
90949	GREEN BAY 1400-1 B/10/00 OVERFLOW	CONC 51200 %REC DUPL QID 60790249	<4 10150235	360 55990240	280 55990242

TOC Total Organic Carbon
OSG Oil and Grease

TVS Total Volatile Solids
TRPH Total Recoverable Petroleum Hydrocarbons

JOB FILE: W944

DATE: 07 SEP

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 3) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG
COMPLETION DATE: 7 SEP

COLUMN.....	1	2	3	4
ANALYTE.....	BS	PS	100	104
NG/KG.....	TOC	TVS	DAI	TRPH

SAMP # DESCRIPTION

90950	GREEN BAY 1505-2 8/10/00 OVERFLOW	CONC 52500 WREC DUPL QID 60790249	<4 10150235	520 55990240	410 55990242
90951	GREEN BAY 1525-2 8/10/00 OVERFLOW	CONC 48600 WREC DUPL QID 60790249	<4 10150235	420 55990240	300 55990242
90952	GREEN BAY 1625-2 8/10/00 OVERFLOW	CONC 46300 WREC DUPL QID 60790249	<4 10150235	590 55990240	460 55990242
90953	GREEN BAY 1715-2 8/10/00 OVERFLOW	CONC 46800 WREC DUPL QID 60790249	<4 10150235	360 55990240	280 55990242
90954	GREEN BAY FELD 1400-2 8/10/00	CONC 43000 WREC DUPL QID 60790249	<4 10150235	340 55990240	260 55990242
90955	GREEN BAY FELD 1905-2 8/10/00	CONC 20400 WREC DUPL QID 60790249	<4 10150235	250 55990240	180 55990242

TOC Total Organic Carbon
DAI Oil and Grease

TVS Total Volatile Solids
TRPH Total Recoverable Petroleum Hydrocarbons

JOB FILE: 50944

DATE: 07 SEP

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 3) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHGR, PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 21 AUG
COMPLETION DATE: 7 SEP

		COLUMN..... 1		2	3	4
		ANALYTE..... BS		95	100	104
		MS/KG..... TDC		TVS	O&G	TRPH
SAMP #	DESCRIPTION					
90956	GREEN BAY FEED	CONC	22700	<4	460	360
	1525-2 8/10/00	SRFC				
		DUP1				
		QID	60790249	10150235	55990240	55990242
90957	GREEN BAY FEED	CONC	20700	<4	360	280
	1625-2 8/10/00	SRFC				
		DUP1				
		QID	60790249	10150235	55990240	55990242
90958	GREEN BAY FEED	CONC	27400	<4	330	270
	1715-2 8/10/00	SRFC				
		DUP1		<4		
		QID	60790249	10150235	55990240	55990242
BL001	METHOD BLANK 01	CONC	<100	<4	<35	<35
		SRFC				
		DUP1				
		QID	60790249	10150235	55990240	55990242
BL002	LCS 01	CONC	11400	N/A	873	879
		SRFC	114.0		87.6	88.2
		DUP1				
		QID	60790249	10150235	55990240	55990242
BL003	EXTERNAL QC 01	CONC	24600	N/A	N/A	N/A
		SRFC	109.3			
		DUP1				
		QID	60790249	10150235	55990240	55990242
TDC	Total Organic Carbon					
O&G	Oil and Grease					
TVS	Total Volatile Solids					
TRPH	Total Recoverable Petroleum Hydrocarbons					

INTERNAL QC DATA

Jobfile Number: 90944
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 21 AUG 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
90944	90944	100	O&G	88.1	93.7	6.2	55990240
90944	90944	104	TRPH	85.8	91.6	6.5	55990242

JOB FILE: 92099

SL-
12/14/00

DATE: 18 DEC

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIA
CATN. PRESERVATIVE:

JOB NUMBER: NEDS PR&C
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 01 NOV
COMPLETION DATE: 18 DEC

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
MS/XS.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP # DESCRIPTION

92099	GB-METPRO UNDER-1	CONC	<7.96	<7.96	<7.96	1657	<7.96	<7.96
		UREC						
		DUP1						
		OTD	54920341	54920341	54920341	54920341	54920341	54920341
92100	GB-METPRO UNDER-2	CONC	<8.18	<8.18	<8.18	1634	<8.18	<8.18
		UREC						
		DUP1						
		OTD	54920341	54920341	54920341	54920341	54920341	54920341
92101	GB-METPRO OVER-1	CONC	<8.29	<8.29	<8.29	8812	<8.29	<8.29
		UREC						
		DUP1						
		OTD	54920341	54920341	54920341	54920341	54920341	54920341
92102	GB-METPRO OVER-2	CONC	<8.32	<8.32	<8.32	8101	<8.32	<8.32
		UREC						
		DUP1						
		OTD	54920341	54920341	54920341	54920341	54920341	54920341
BLW01	METHOD BLANK 01	CONC	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3
		UREC						
		DUP1						
		OTD	54920341	54920341	54920341	54920341	54920341	54920341
BLW02	LCS 01	CONC	1.70	N/A	N/A	N/A	N/A	N/A
		UREC	102.0					
		DUP1	1.63					
		OTD	54920341	54920341	54920341	54920341	54920341	54920341

PCB-1016 PCB-1016
PCB-1232 PCB-1232
PCB-1248 PCB-1248

PCB-1221 PCB-1221
PCB-1242 PCB-1242
PCB-1254 PCB-1254

JOB FILE: 92099

DATE: 18 DEC

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLEN
CHEM. PRESERVATIVE:JOB NUMBER: NEED PREC
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 01 NOV
COMPLETION DATE: 18 DEC

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
MG/KG.....	PCB-1260	TOLXYL-8	DCBP

SAMP # DESCRIPTION

92099	GB/METPRO UNDER-1	CONC 94.9 %REC DUPL QID 54920341	72.1% 54920341	83.1% 54920341	
92100	GB/METPRO UNDER-2	CONC 87.2 %REC DUPL QID 54920341	72.3% 54920341	78.6% 54920341	
92101	GB/METPRO OVER-1	CONC 526 %REC DUPL QID 54920341	69.4% 54920341	70.8% 54920341	
92102	GB/METPRO OVER-2	CONC 490 %REC DUPL QID 54920341	66.5% 54920341	73.9% 54920341	
BL#01	METHOD BLANK 01	CONC <8.3 %REC DUPL QID 54920341	73.0% 54920341	125% 54920341	
BL#02	LCS 01	CONC 1.67 %REC 97.0 DUPL 1.65 QID 54920341	87.9% 85.8 54920341	78.4% 87.2 54920341	

PCB-1260 PCB-1260

DCBP Decachlorobiphenyl(Surrogate (40-140 MS))

TOLXYL-8 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 MS

INTERNAL QC DATA

Jobfile Number: 92099
Project: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN
Account Number: NEED PR&C
Date Received: 01 NOV 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
92099	BL#02	137	PCB-1016	102.0	97.6	4.4	54920341
92099	BL#02	143	PCB-1260	97.0	98.0	1.0	54920341

JOB FILE: 92103

SLC
12/13/00

DATE: 11 DEC 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN
CHEM. PRESERVATIVE:

JOB NUMBER: NEED PRBC
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 01 NOV 1
COMPLETION DATE: 11 DEC 1

COLUMN.....	1	2	3
ANALYTE.....	86	100	104
MG/KG.....	TOC	OWG	TRPH

SAMP # DESCRIPTION

SAMP #	DESCRIPTION	CONC	SRRC	DUPL	OTD
92103	GB/METPRO UNDER-1	14800	210	120	
		10400			
		60040311	55990346	55990346	
92104	GB/METPRO UNDER-2	8500	200	110	
		60040311	55990346	55990346	
92105	GB/METPRO OVER-1	70300	630	390	
		60040311	55990346	55990346	
92106	GB/METPRO OVER-2	41000	570	350	
		60040311	55990346	55990346	
BLW01	METPRO BLANK 01	4100	<35	<35	
		60040311	55990346	55990346	
BLW02	LCS 01	11500	878	875	
		115.0	88.1	87.6	
		60040311	55990346	55990346	

TOC Total Organic Carbon

OWG Oil and Grease

TRPH Total Recoverable Petroleum Hydrocarbons

JOB FILE: 92103

DATE: 11 DEC 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-CLIN
CHEM. PRESERVATIVE:

JOB NUMBER: NEED PR&C
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 01 NOV 1
COMPLETION DATE: 11 DEC 1

COLUMN.....	1	2	3
ANALYTE.....	86	100	104
MS/KG.....	TDC	O&G	TRPB

SAMP # DESCRIPTION

BLVD3	EXTERNAL QC 01	CONC 245	N/A	N/A
		SAEC 106.9		
		DUP1		
		QID 60040311	55990346	55990346

TDC Total Organic Carbon

O&G Oil and Grease

TRPB Total Recoverable Petroleum Hydrocarbons

INTERNAL QC DATA

Jobfile Number: 92103
Project: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN
Account Number: NEED PR&C
Date Received: 01 NOV 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
92103	BL#02	100	O&G	88.1	88.6	0.6	55990346
92103	BL#02	104	TRPH	87.6	87.8	0.2	55990346

APR 1-19-01
J01 FILE: 92107

DATE: 18 JAN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLOME-ESTES-OLIV
CHEM. PRESERVATIVE:

JOB NUMBER: NEDD PRAC
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 01 NOV
COMPLETION DATE: 18 JAN

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
MG/KG.....	AS	CB	CR	CU	PB	HG

SAMP #	DESCRIPTION							
92107	GB/METPRO UNDER-1	COND <3.0 SPEC 101.0 DUPL 0.78 J QID 00001008	0.24 J 56.4 0.23 J 00001008 HGA AUTH	13.6 95.5 13.5 00001008 HGA AUTH	13.4 99.0 13.9 00001008 HGA AUTH	18.6 86.0 18.9 00001008 HGA AUTH	0.404 100.4 0.398 04650327	
92108	GB/METPRO UNDER-2	COND 0.69 J SPEC DUPL QID 00001008	0.20 J 00001008 HGA AUTH	11.9 00001008 HGA AUTH	13.1 00001008 HGA AUTH	18.4 00001008 HGA AUTH	0.390 04650327	
92109	GB/METPRO OVER-1	COND 7.1 SPEC DUPL QID 00001008	2.07 00001008 HGA AUTH	112 00001008 HGA AUTH	120 00001008 HGA AUTH	149 00001008 HGA AUTH	4.98 04650327	
92110	GB/METPRO OVER-2	COND 6.8 SPEC DUPL QID 00001008	1.95 00001008 HGA AUTH	105 00001008 HGA AUTH	116 00001008 HGA AUTH	140 00001008 HGA AUTH	4.34 04650332	
BL#01	METHOD BLANK 01	COND <3.0 SPEC DUPL QID 00001008	<0.50 00001008 HGA AUTH	<2.0 00001008 HGA AUTH	<2.0 00001008 HGA AUTH	<2.0 00001008 HGA AUTH	<0.040 04650332	
BL#02	LCS 01	COND 9.39 SPEC 93.9 DUPL QID 00001008	5.15 103.0 00001008 HGA AUTH	20.6 103.0 00001008 HGA AUTH	20.3 101.5 00001008 HGA AUTH	10.5 103.0 00001008 HGA AUTH	0.0715 95.3 04650332	
AS	Arsenic			CD	Cadmium			
CB	Chromium			CU	Copper			
PB	Lead			HG	Mercury			

JOB FILE: 92107

DATE: 18 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-DLM
CHEM. PRESERVATIVE:

JOB NUMBER: NEED PRSC
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 01 NOV
COMPLETION DATE: 18 JUN

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
MG/KG.....	AS	CD	CR	CU	PB	HG

SAMP # DESCRIPTION

BUR03	EXTERNAL QC 01	COAC 79.0	33.6	17.6	96.4	952	0.0546
		SRIC					
		DUPL					
		QID 00001008	00001008	00001008	00001008	00001008	04650332
			HSA AUTH	HSA AUTH	HSA AUTH	HSA AUTH	

AS Arsenic
CR Chromium
PB Lead

CD Cadmium
CU Copper
HG Mercury

JOB FILE: 92107

DATE: 18 JAN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIM
CHEM. PRESERVATIVE:JOB NUMBER: NGS5 PR5C
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 01 NOV
COMPLETION DATE: 18 JAN

		COLUMN..... 7	8	9	10	11	12	
		ANALYTE..... 9	10	11	11	25	30	
		MG/KG..... 11	SE	AG	ZN	BA	FE	
SAMP #	DESCRIPTION							
92107	GR/METPRO UNDER-1	CONC 5.4	<4.0	<1.0	32.8	17.8 B	4400	
		WREC 96.0	94.0	62.6	95.8	100.6		
		DUP1 5.4	<4.0	<1.0	34.0	17.7 B	4510	
		DID 00001008	00001008	00001008	00001008	00001008	00001008	
		HGA AUTH		HGA AUTH				
92108	GR/METPRO UNDER-2	CONC 4.5	<4.0	<1.0	31.4	16.3 B	3430	
		WREC						
		DUP1						
		DID 00001008	00001008	00001008	00001008	00001008	00001008	
		HGA AUTH		HGA AUTH				
92109	GR/METPRO OVER-1	CONC 32.2	<4.0	1.4	270	149 B	23200	
		WREC						
		DUP1						
		DID 00001008	00001008	00001008	00001008	00001008	00001008	
		HGA AUTH		HGA AUTH				
92110	GR/METPRO OVER-2	CONC 29.5	0.86 J	1.4	257	141 B	22300	
		WREC						
		DUP1						
		DID 00001008	00001008	00001008	00001008	00001008	00001008	
		HGA AUTH		HGA AUTH				
BL#01	METHOD BLANK Q1	CONC <2.0	<4.0	<1.0	<2.0	0.14 J	<24.0	
		WREC						
		DUP1						
		DID 00001008	00001008	00001008	00001008	00001008	00001008	
		HGA AUTH		HGA AUTH				
BL#02	LCS Q1	CONC 20.8	4.7	3.42	51.8	51.8 B	110	
		WREC 104.0	94.0	68.4	103.6	103.6	110.0	
		DUP1						
		DID 00001008	00001008	00001008	00001008	00001008	00001008	
		HGA AUTH		HGA AUTH				
NI	Nickel			SE	Selenium			
AG	Silver			ZN	Zinc			
BA	Barium			FE	Iron			

JOB FILE: 92107

DATE: 10 JAN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONS-ESTES-OLIN
CHRM. PRESERVATIVE:

JOB NUMBER: NEDD PRSC
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 01 NOV
COMPLETION DATE: 18 JAN

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	30
MG/KG.....	NI	SE	AG	ZN	BA	FE

SAMP # DESCRIPTION

BL#03	EXTERNAL GC D1	CONC	13.0	<4.0	0.59 µ	272	172 g	18900	RC
		PREC							
		DUPL							
		DID	00001008	00001008	00001008	00001008	00001008	00001008	
		NSA AUTH			NSA AUTH				

NI Nickel
AG Silver
BA Barium

SE Selenium
ZN Zinc
FE Iron

JOB FILE: 92107

DATE: 18 JAN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-GLIN
CHEM. PRESERVATIVE:

JOB NUMBER: NEED PRSC
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 01 NOV
COMPLETION DATE: 18 JAN

COLUMN..... 13 14
ANALYTE..... 32 33
MG/KG..... MN MO

SAMP # DESCRIPTION

92107	GB/METPRO UNDER-1	CONC 83.4 SPEC 103.0 DUPL 83.3 QID 00001008 HGA AUTH	<2.0 <2.0 00001008 	
92108	GB/METPRO UNDER-2	CONC 70.5 SPEC DUPL QID 00001008 HGA AUTH	<2.0 00001008 	
92109	GB/METPRO OVER-1	CONC 251 SPEC DUPL QID 00001008 HGA AUTH	1.11 J 00001008 	
92110	GB/METPRO OVER-2	CONC 243 SPEC DUPL QID 00001008 HGA AUTH	1.17 J 00001008 	
BL#01	METHOD BLANK 01	CONC <0.80 SPEC DUPL QID 00001008 HGA AUTH	<2.0 00001008 	
BL#02	LCS 01	CONC 21.2 SPEC 106.0 DUPL QID 00001008 HGA AUTH	N/A 00001008 	

MN Manganese

MO Molybdenum

JOB FILE: 92107

DATE: 18 JA

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 6) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLOSE-ESTES-OLIM
CHEM. PRESERVATIVE:

JOB NUMBER: NEED PR&C
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 01 NOV
COMPLETION DATE: 18 JAN

COLUMN..... 13 14
ANALYTE..... 32 33
MG/KG..... MN MO

SAMP # DESCRIPTION

BLR03 EXTERNAL QC 07 CONC 444 <2.0 |
 SRQC |
 BAPL |
 OIO 00001008 00001008 |
 RGA AUTO

MN Manganese

MO Molybdenum

JOB FILE: 92111

SLC
12/13/00

DATE: 12 DEC 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-DLM
CHEM. PRESERVATIVE:

JOB NUMBER: NEED PRG
TYPE OF SAMPLE: WATER

RECEIPT DATE: 01 NOV 0
COMPLETION DATE: 12 DEC 0

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
PRG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP # DESCRIPTION

RC

92111	GB/METPRO UNDER 1	CONC <0.24 SREC DUPL QID 54920341	<0.24 54920341	<0.24 54920341	2.65 54900341	<0.24 54920341	<0.24 54920341
92112	GB/METPRO OVER 1	CONC <0.24 SREC DUPL QID 54920341	<0.24 54920341	<0.24 54920341	0.43 54900341	<0.24 54920341	<0.24 54920341
BL#01	METHOD BLANK 01	CONC <0.25 SREC DUPL QID 54920341	<0.25 54920341	<0.25 54920341	<0.25 54920341	<0.25 54920341	<0.25 54920341
BL#02	LCS 01	CONC 2.42 SREC 96.8 DUPL 2.39 QID 54920341	N/A 54920341	N/A 54920341	N/A 54920341	N/A 54920341	N/A 54920341

PCB-1016 PCB-1016
PCB-1232 PCB-1232
PCB-1248 PCB-1248

PCB-1221 PCB-1221
PCB-1242 PCB-1242
PCB-1254 PCB-1254

JOB FILE: 92111

DATE: 12 DEC 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLOME-ESTES-OLIN
CHEN. PRESERVATIVE:

JOB NUMBER: NEED PRAC
TYPE OF SAMPLE: WATER

RECEIPT DATE: 01 NOV 1
COMPLETION DATE: 12 DEC 1

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
PPS.....	PCB-1260	TcIXYL-S	DCLBP

SAMP # DESCRIPTION

92111	GB/METPRO UNDER 1	CONC 0.30 %REC DUPL QID 54920341	65.3% 54920341	56.5% 54920341
-------	----------------------	---	----------------------------------	----------------------------------

92112	GB/METPRO OVER 1	CONC <0.24 %REC DUPL QID 54920341	67.3% 54920341	64.0% 54920341
-------	---------------------	--	----------------------------------	----------------------------------

BL#01	METHOD BLANK 01	CONC <0.25 %REC DUPL QID 54920341	77.4% 54920341	80.9% 54920341
-------	-----------------	--	----------------------------------	----------------------------------

BL#02	LES 01	CONC 2.19 %REC 87.6 DUPL 2.24 QID 54920341	73.0% 71.2% 54920341	79.6% 84.7% 54920341
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PCB-1260 PCB-1260

DCLBP Decachlorobiphenyl(Surrogate (40-140 MS))

TcIXYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 MS

INTERNAL QC DATA

Jobfile Number: 92111
Project: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN
Account Number: NEED PR&C
Date Received: 01 NOV 00

Job#	Sample	Tst	Analyte	% REC	% SDOPL	RPD	OID
92111	BL#02	137	PCB-1016	96.8	95.6	1.2	54920341
92111	BL#02	143	PCB-1260	87.6	89.6	2.3	54920341

487 1-29-01

JOB FILE: 92113

DATE: 26 JAN 01

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 3) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLEN
CHEM. PRESERVATIVE: HNO3JOB NUMBER: NEDD PESC
TYPE OF SAMPLE: WATERRECEIPT DATE: 01 NOV 00
COMPLETION DATE: 26 JAN 01

		COLUMN.....	1	2	3	4	5	6
		ANALYTE.....	2	4	5	6	7	8
		PPM.....	AS	CD	CR	CU	PB	HG
SAMP #	DESCRIPTION							R
92113	GR/METPRO	CONC	<0.015	<0.0025	0.014	0.022	0.017	0.00023
	UNDER	PREC	110.0	102.0	101.0	104.0	103.0	103.6
		DUP1	0.0041 J	<0.0025	0.014	0.021	0.018	0.00031
		DID	00001002	00001002	00001002	00001002	00001002	04650340
			HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	
92114	GR/METPRO	CONC	<0.015	<0.0025	0.005 J	0.0088 J	0.012	<0.00020
	OVER	PREC						
		DUP1						
		DID	00001002	00001002	00001002	00001002	00001002	04650340
			HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	
BLND1	METHOD BLANK D1	CONC	<0.015	<0.0025	<0.010	<0.010	<0.010	<0.00020
		PREC						
		DUP1						
		DID	00001002	00001002	00001002	00001002	00001002	04650340
			HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	
BLND2	LCS D1	CONC	1.09	0.530	1.04	1.00	1.07	0.000543
		PREC	109.0	108.0	104.0	100.0	107.0	92.0
		DUP1						
		DID	00001002	00001002	00001002	00001002	00001002	04650340
			HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	
BLND3	EXTERNAL QC D1	CONC	N/A	N/A	N/A	N/A	N/A	0.00043
		PREC						
		DUP1						
		DID	00001002	00001002	00001002	00001002	00001002	04650340
			HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	HQA AUTH	
AS	Arsenic				CD	Cadmium		
CR	Chromium				CU	Copper		
PB	Lead				HG	Mercury		

JOB FILE: 92113

DATE: 26 JAN 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 3) *****

JOB DESCRIPTION: GREEN BAY MOBILE HYDROCYCLONE-ESTES-OLIN
CHEM. PRESERVATIVE: RMQSJOB NUMBER: NEED PRSC
TYPE OF SAMPLE: WATERRECEIPT DATE: 01 NOV 1
COMPLETION DATE: 26 JAN 1

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	29	30
PPM.....	NI	SE	AG	ZN	BA	FE

SAMP # DESCRIPTION

R

92113	GB/METPRO UNDER	CONC 0.0044 J	<0.020	<0.005	0.040	0.0518	1.15
		SRUC 102.0	105.0	105.0	103.0	104.0	105.0
		DUP1 0.0045 J	<0.020	<0.005	0.042	0.0518	1.20
		QID 00001002	00001002	00001002	00001002	00001002	00001002
		HGA AUTH		HGA AUTH			
92114	GB/METPRO OVER	CONC <0.010	<0.020	<0.005	0.036	0.0422	0.520
		SRUC					
		DUP1					
		QID 00001002	00001002	00001002	00001002	00001002	00001002
		HGA AUTH		HGA AUTH			
BL#01	METHOD BLANK 01	CONC <0.010	<0.020	<0.005	<0.010	<0.0025	<0.120
		SRUC					
		DUP1					
		QID 00001002	00001002	00001002	00001002	00001002	00001002
		HGA AUTH		HGA AUTH			
BL#02	LCS 01	CONC 1.06	1.05	0.204	1.11	1.01	6.31
		SRUC 106.0	105.0	102.0	111.0	101.0	105.0
		DUP1					
		QID 00001002	00001002	00001002	00001002	00001002	00001002
		HGA AUTH		HGA AUTH			
BL#03	EXTERNAL QC 01	CONC N/A	N/A	N/A	N/A	N/A	N/A
		SRUC					
		DUP1					
		QID 00001002	00001002	00001002	00001002	00001002	00001002
		HGA AUTH		HGA AUTH			

NI Nickel
AG Silver
BA Barium

SE Selenium
ZN Zinc
FE Iron

JOB FILE: 92113

DATE: 26 JAN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 3) *****

JOB DESCRIPTION: GREEN DAY MOBILE HYDROCYCLONE-ESTES-CLIN
CHEM. PRESERVATIVE: HNO3

JOB NUMBER: NEDD PR&C
TYPE OF SAMPLE: WATER

RECEIPT DATE: 01 NOV
COMPLETION DATE: 26 JAN

COLUMN..... 13 14
ANALYTE..... 32 33
PPH..... MN MO

SAMP # DESCRIPTION

92113	GS/METPRO	CONC	0.0369		0.010 J	
	UNDER	XREC	108.0			
		DUP1	0.0372			
		Q10	00001002		00001002	
			HGA AUTH			
92114	GS/METPRO	CONC	0.0199		0.0033 J	
	OVER	XREC				
		DUP1				
		Q10	00001002		00001002	
			HGA AUTH			
BL#01	METHOD BLANK 01	CONC	<0.004		<0.010	
		XREC				
		DUP1				
		Q10	00001002		00001002	
			HGA AUTH			
BL#02	LCS 01	CONC	1.06		N/A	
		XREC	106.0			
		DUP1				
		Q10	00001002		00001002	
			HGA AUTH			
BL#03	EXTERNAL QC 01	CONC	N/A		N/A	
		XREC				
		DUP1				
		Q10	00001002		00001002	
			HGA AUTH			

MN Manganese

MO Molybdenum

085 2-9-01

JOB FILE: 93019

DATE: 09 FEB

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 8054FD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 20 DEC
COMPLETION DATE: 9 FEB

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
PG/NO.....	AS	CD	CR	CU	PB	HS

SAMP # DESCRIPTION

R

93019	SAND 1 CELL 4	CONC 0.500 3REC 88.0 DUPL 0.500 QID 01261032	0.050 94.0 0.050 01261032 HGA AUTH	3.50 96.2 3.60 01261032 HGA AUTH	3.60 98.2 3.70 01261032 HGA AUTH	8.10 92.0 8.30 01261032 HGA AUTH	0.040 99.2 <0.040 04651023
93020	SAND 2 CELL 4	CONC 0.400 3REC DUPL QID 01261032	0.030 01261032 HGA AUTH	2.60 01261032 HGA AUTH	16.5 01261032 HGA AUTH	3.10 01261032 HGA AUTH	<0.040 04651023
93021	SILT/CLAY 1	CONC 5.10 3REC DUPL QID 01261032	1.41 01261032 HGA AUTH	77.6 01261032 HGA AUTH	76.8 01261032 HGA AUTH	104 01261032 HGA AUTH	3.44 04651023
93022	SILT/CLAY 2	CONC 5.00 3REC DUPL QID 01261032	1.30 01261032 HGA AUTH	82.3 01261032 HGA AUTH	73.7 01261032 HGA AUTH	96.4 01261032 HGA AUTH	3.46 04651023
BLW01	METHOD BLANK 01	CONC <0.200 3REC DUPL QID 01261032	<0.020 01261032 HGA AUTH	<0.100 01261032 HGA AUTH	<0.100 01261032 HGA AUTH	<0.100 01261032 HGA AUTH	<0.040 04651023
BLW02	LCS 01	CONC 8.70 3REC 87.2 DUPL QID 01261032	4.69 93.8 01261032 HGA AUTH	18.9 94.5 01261032 HGA AUTH	20.0 100.0 01261032 HGA AUTH	9.70 97.1 01261032 HGA AUTH	0.0699 93.2 04651023

AS Arsenic
CR Chromium
PB Lead

CD Cadmium
CU Copper
HG Mercury

JOB FILE: 03019

DATE: 09 FEB 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEN, PRESERVATIVE:

JOB NUMBER: 0054PD-92510183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 20 DEC 1
COMPLETION DATE: 9 FEB 1

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	2	4	5	6	7	8
RG/KG.....	AS	CO	CR	CU	PR	HG

SAMP #	DESCRIPTION							
BLND3	EXTERNAL QC 01	CONC	83.5	37.1	17.5	92.0	1180	0.0537
		TRAC						
		DUP						
	DID 01261032		01261032	01261032	01261032	01261032	01261032	06651023
			HSA AUTH	HSA AUTH	HSA AUTH	HSA AUTH	HSA AUTH	

AS Arsenic
CR Chromium
PR Lead

CO Cadmium
CU Copper
HG Mercury

JOB FILE: 93019

DATE: 09 FEB 1

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 6) *****

JOB DESCRIPTION: GREEN BAY - CLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-92510183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 20 DEC 1
COMPLETION DATE: 9 FEB 1

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	29	32
MG/KG.....	NI	SE	AG	ZN	BA	MN

SAMP # DESCRIPTION

NI

93019	SAND 1 CELL 4	CONC	1.90	<0.200	0.300	15.2	5.30	47.7
		PREC	93.8	87.2	93.8	87.0	106.6	117.0
		DUPL	1.90	<0.200	0.200	15.5	5.50	48.7
		QID	01261032	01261032	01261032	01261032	01261032	01261032
			HGA AUTH		HGA AUTH			HGA AUTH
93020	SAND 2 CELL 4	CONC	2.50	<0.200	0.500	11.8	3.90	40.8
		PREC						
		DUPL						
		QID	01261032	01261032	01261032	01261032	01261032	01261032
			HGA AUTH		HGA AUTH			HGA AUTH
93021	SILT/CLAY 1	CONC	26.6	1.20	0.799	3.11	102	325
		PREC						
		DUPL	32.1	1.1	0.73			325
		QID	01261032	01261032	01261032	01261032	01261032	01261032
			HGA AUTH		HGA AUTH			HGA AUTH
93022	SILT/CLAY 2	CONC	27.6	1.00	1.00	294	107	326
		PREC						
		DUPL						
		QID	01261032	01261032	01261032	01261032	01261032	01261032
			HGA AUTH		HGA AUTH			HGA AUTH
BL#01	METHOD BLANK 01	CONC	<0.100	<0.200	<0.100	<1.00	<0.100	<0.100
		PREC						
		DUPL						
		QID	01261032	01261032	01261032	01261032	01261032	01261032
			HGA AUTH		HGA AUTH			HGA AUTH
BL#02	LCS 01	CONC	19.4	4.20	4.50	44.6	44.0	19.2
		PREC	97.0	83.6	93.6	69.2	88.0	96.0
		DUPL						
		QID	01261032	01261032	01261032	01261032	01261032	01261032
			HGA AUTH		HGA AUTH			HGA AUTH

NI: Nickel
AG: Silver
BA: Barium

SE: Selenium
ZN: Zinc
MN: Manganese

JOB FILE: 93019

DATE: 09 FEB 01

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 4 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 20 DEC 00
COMPLETION DATE: 9 FEB 01

COLUMN.....	7	8	9	10	11	12
ANALYTE.....	9	10	11	13	25	32
MG/KG.....	NI	SE	AG	ZN	BA	MN

SAMP #	DESCRIPTION							ROW
BL#03	EXTERNAL QC 01	CONC 14.3	1.40	4.09	329	175	533	7
		XREC						
		DUPL						
		OID 01261032	01261032	01261032	01261032	01261032	01261032	
		HGA AUTH		HGA AUTH			HGA AUTH	

NI	Nickel	SE	Selenium
AG	Silver	ZN	Zinc
BA	Barium	MN	Manganese

151

JOB FILE: 93019

DATE: 09 FEB C

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 5 OF 6) *****

JOB DESCRIPTION: GREEN BAY - GLTN-ESTES
CHRM. PRESERVATIVE:

JOB NUMBER: 005490-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 20 DEC C
COMPLETION DATE: 9 FEB C

COLUMN..... 13
ANALYTE..... 33
MS/KG..... NO

SAMP # DESCRIPTION RC

93019 SAND 1 CELL 4 CONC <0.100
XREC 98.4
DUPL <0.100
QID 01261032

93020 SAND 2 CELL 4 CONC <0.100
XREC
DUPL
QID 01261032

93021 SILT/CLAY 1 CONC 0.799
XREC
DUPL
QID 01261032

93022 SILT/CLAY 2 CONC 0.899
XREC
DUPL
QID 01261032

91#01 METHOD BLANK 01 CONC <0.100
XREC
DUPL
QID 01261032

91#02 LCS 01 CONC 5.00
XREC 100.2
DUPL
QID 01261032

MO Molybdenum

JOB FILE: 95019

DATE: 09 FEB 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 6 OF 6) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 20 DEC 0
COMPLETION DATE: 9 FEB 0

COLUMN..... 13
ANALYTE..... 33
MG/KG..... MO

SAMP # DESCRIPTION

RC

BLIND	EXTERNAL QC DT	CONC	0.696	
		PREC		
		DUP1		
		DID	01261032	

MO Molybdenum

APR 1-25-07

JOB FILE: 93023

DATE: 24 JAN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEN, PRESERVATIVE:

JOB NUMBER: 0054PB-92310103
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 20 DEC
COMPLETION DATE: 24 JAN

COLIMN.....	1	2	3	4	5	6	
ANALYTE.....	137	138	139	140	141	142	
UG/KG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	
SAMP # DESCRIPTION							
93023 SAND 1 CELL 4	COND <10.3	<10.3	<10.3	565	<10.3	<10.3	
	WREC 42.8						
	DUPL						
	OID 54821012	54921012	54821012	54821012	54821023	54821012	
93024 SAND 2 CELL 4	COND <10.3	<10.3	<10.3	523	<10.3	<10.3	
	WREC						
	DUPL						
	OID 54821012	54921012	54821012	54821012	54821023	54821012	
93025 SILT/CLAY 1	COND <38.1	<38.1	<38.1	6052	<38.1	<38.1	
	WREC						
	DUPL						
	OID 54821012	54921012	54821012	54821012	54821023	54821012	
93026 SILT/CLAY 2	COND <39.7	<39.7	<39.7	5805	<39.7	<39.7	
	WREC						
	DUPL						
	OID 54821012	54921012	54821012	54821012	54821023	54821012	
BLK01 METHOD BLANK 01	COND <8.33	<8.33	<8.33	<8.33	<8.33	<8.33	
	WREC						
	DUPL						
	OID 54821012	54921012	54821012	54821012	54821023	54821012	
BLK02 LCS 01	COND 0.73	N/A	N/A	N/A	N/A	N/A	
	WREC 87.2						
	DUPL						
	OID 54821012	54921012	54821012	54821012	54821023	54821012	
PCB-1016 PCB-1016							
PCB-1232 PCB-1232							
PCB-1248 PCB-1248							
	PCB-1221 PCB-1221						
	PCB-1242 PCB-1242						
	PCB-1254 PCB-1254						

JOB FILE: 93023

DATE: 24 JAN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 0054PD-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 20 DEC
COMPLETION DATE: 24 JAN

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
UG/KG.....	PCB-1260	1,2,4,5-TCDF	DCLBP

SAMP # DESCRIPTION

R

93023	SAND 1 CELL 4	CONC	14.1	79.4%	88.8%
		%REC	103.6	81.4	84.1
		DUPL			
		QID	54821012	54821012	54821012

93024	SAND 2 CELL 4	CONC	28.7	83.1%	90.1%
		%REC			
		DUPL			
		QID	54821012	54821012	54821012

93025	SILT/CLAY 1	CONC	319	78.3%	89.2%
		%REC			
		DUPL			
		QID	54821012	54821012	54821012

93026	SILT/CLAY 2	CONC	316	71.8%	84.9%
		%REC			
		DUPL			
		QID	54821012	54821012	54821012

BLW01	METHOD BLANK 01	CONC	<8.33	86.2%	73.7%
		%REC			
		DUPL			
		QID	54821012	54821012	54821012

BLW02	LCS 01	CONC	0.75	87.0%	74.9%
		%REC	93.4		
		DUPL			
		QID	54821012	54821012	54821012

PCB-1260 PCB-1260

1,2,4,5-TCDF 2,4,5,6-Tetrachloro-m-xylene(Surrogate(40-140 WS

DCLBP Decachlorobiphenyl(Surrogate (40-140 WS))

INTERNAL QC DATA

Jobfile Number: 93023
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 20 DEC 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
93023	93023	137	PCB-1016	42.8	60.4	34.1	54821012
93023	93023	143	PCB-1260	103.6	100.4	3.1	54821012
93023	93023	145	TelXYL-S	81.4	88.8	8.7	54821012
93023	93023	146	DCLBP	84.1	87.5	4.0	54821012

JOB FILE: 93027

DATE: 16 JAN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 0054PO-923101B5
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 20 DEC
COMPLETION DATE: 16 JAN

COLUMN.....	1	2	3
ANALYTE.....	86	100	104
MG/KG.....	TOC	040	TRPH

SAMP # DESCRIPTION

93027	SAND 1 CELL 4	CONC 1610 SPEC DUPL 1980 OID 60041010	56 55991014	19 J 55991014
93028	SAND 2 CELL 4	CONC 1260 SPEC DUPL OID 60041010	30 87.6 55991014	2 J 88.8 55991014
93029	SILT/CLAY 1	CONC 14200 SPEC DUPL OID 60041010	370 55991014	200 55991014
93030	SILT/CLAY 2	CONC 28000 SPEC DUPL OID 60041010	580 55991014	348 55991014
BL#01	METHOD BLANK 01	CONC <100 SPEC DUPL OID 60041010	<35 55991014	<35 55991014
BL#02	LCS 01	CONC 11500 SPEC 115.0 DUPL OID 60041010	883 88.6 55991014	883 88.6 55991014

TOC Total Organic Carbon
TRPH Total Recoverable Petroleum Hydrocarbons

040 Oil and Grease

JES FILE: 93027

DATE: 16 JA

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
 CHEM. PRESERVATIVE:

JOB NUMBER: 0054P9-92310183
 TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 20 DE
 COMPLETION DATE: 16 JA

COLUMN.....	1	2	3
ANALYTE.....	86	100	104
MG/KG.....	TOC	DAG	TRPH

SAMP # DESCRIPTION

BL903	EXTERNAL QC 01	CONC 21750	N/A	N/A
		REC 95.7		
		DUP1		
		DID 60541010	55991014	55991014

TOC Total Organic Carbon

DAG Oil and Grease

TRPH Total Recoverable Petroleum Hydrocarbons

INTERNAL QC DATA

Jobfile Number: 93027
Project: GREEN BAY - OLIN-ESTES
Account Number: 0054PD-92310183
Date Received: 20 DEC 00

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	OID
93027	93028	100	O&G	87.6	89.2	1.8	55991014
93027	93028	104	TRPH	88.8	89.0	0.2	55991014

JOB FILE: 94937

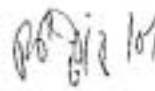
DATE: 07 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 3) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 00549D-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 16 MAR
COMPLETION DATE: 7 JUN


 COLUMN..... 1 2 3 4 5 6
 ANALYTE..... 2 4 5 6 7 8
 ME/KC..... AS CD CR CU PB HG

SAMP #	DESCRIPTION						
94937	CLAY 1 CELL 4 3/16/01	CONC 6.90 SPEC 102.0 DUPL 6.90 QID 01261137	2.29 99.6 2.32 01261137 HGA AUTH	140 70.6 140 01261137 HGA AUTH	118 70.6 118 01261137 HGA AUTH	191 110.0 195 01261137 HGA AUTH	3.33 04651102
94938	CLAY 2 CELL 4 3/16/01	CONC 6.79 SPEC DUPL QID 01261137	2.28 01261137 HGA AUTH	128 01261137 HGA AUTH	108 01261137 HGA AUTH	196 01261137 HGA AUTH	2.40 04651102
94939	SILT CELL 4 3/16/01	CONC 2.00 SPEC DUPL QID 01261137	0.320 01261137 HGA AUTH	15.1 01261137 HGA AUTH	21.2 01261137 HGA AUTH	262 01261137 HGA AUTH	0.363 109.2 0.371 04651102
BL001	METHOD BLANK D1	CONC <0.000 SPEC DUPL QID 01261137	<0.000 01261137 HGA AUTH	<0.100 01261137 HGA AUTH	<0.100 01261137 HGA AUTH	<0.100 01261137 HGA AUTH	<0.0100 04651102
BL002	LCS 01	CONC 10.2 SPEC 102.0 DUPL QID 01261137	51.4 102.8 01261137 HGA AUTH	19.1 95.5 01261137 HGA AUTH	18.9 94.5 01261137 HGA AUTH	9.60 96.3 01261137 HGA AUTH	0.0992 99.2 04651102
BL003	EXTERNAL QC 01	CONC 96.3 SPEC DUPL QID 01261137	93.2 01261137 HGA AUTH	22.1 01261137 HGA AUTH	101 01261137 HGA AUTH	1090 01261137 HGA AUTH	0.0650 108.3 04651102

AS Arsenic
 CR Chromium
 PB Lead

CD Cadmium
 CU Copper
 HG Mercury

JTS FILE: 94937

DATE: 07 JUN

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 3) *****

JOB DESCRIPTION: GREEN BAY - OLIM-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 005400-92310103
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 16 MAR
COMPLETION DATE: 7 JUN

		COLUMN.....	7	8	9	10	11	12
		ANALYTE.....	9	10	11	13	24	25
		MS/EG.....	NI	SE	AG	ZN	AL	BA
SAMP #	DESCRIPTION							
94937	CLAY 1 CELL 4 3/16/01	CONC	38.7	1.30	1.30	689	26500	186
		WREC	87.4	88.2	98.2	79.4	99.8	110.4
		DUP1	38.7	1.30	1.60	692	26400	186
		QID	01261137	01261137	01261137	01261137	01231154	01261137
			HGA AUTH		HGA AUTH			
94938	CLAY 2 CELL 4 3/16/01	CONC	35.0	1.30	1.60	672	26400	182
		WREC						
		DUP1						
		QID	01261137	01261137	01261137	01261137	01231154	01261137
			HGA AUTH		HGA AUTH			
94939	SILT CELL 4 3/16/01	CONC	7.00	0.300	0.400	320	1940	27.5
		WREC						
		DUP1						
		QID	01261137	01261137	01261137	01261137	01231154	01261137
			HGA AUTH		HGA AUTH			
BL#01	METHOD BLANK 01	CONC	<0.100	<0.200	<0.100	1.20	<2.00	<0.100
		WREC						
		DUP1						
		QID	01261137	01261137	01261137	01261137	01231154	01261137
			HGA AUTH		HGA AUTH			
BL#02	LCS 01	CONC	18.3	4.30	4.80	45.7	N/A	53.4
		WREC	91.5	86.8	96.0	93.4		106.8
		DUP1						
		QID	01261137	01261137	01261137	01261137	01231154	01261137
			HGA AUTH		HGA AUTH			
BL#03	EXTERNAL QC 01	CONC	16.4	1.60	4.79	331	33000	216
		WREC						
		DUP1						
		QID	01261137	01261137	01261137	01261137	01231154	01261137
			HGA AUTH		HGA AUTH			
NI	Nickel				SE	Selenium		
AG	Silver				ZN	Zinc		
AL	Aluminum				BA	Barium		

JOB FILE: 94057

DATE: 07 JUL

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 3 OF 5) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHOR, PRESERVATIVE:

JOB NUMBER: 005490-92310483
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 16 MAY
COMPLETION DATE: 7 JUN

COLUMN.....	13	14	15
ANALYTE.....	30	32	33
MG/KG.....	FE	MN	MO

SAMP # DESCRIPTION

94937	CLAY 1 CELL 4 3/16/01	CONC	36700	330	1.00
		%REC	95.6	90.6	114.8
		DUP1	30400	335	1.00
		Q10	01231154	01261137	01261137
HQA AUTH					
94938	CLAY 2 CELL 4 3/16/01	CONC	30500	312	1.00
		%REC			
		DUP1			
		Q10	01231154	01261137	01261137
HQA AUTH					
94939	SILT CELL 4 3/16/01	CONC	10500	174	0.503
		%REC			
		DUP1			
		Q10	01231154	01261137	01261137
HQA AUTH					
BLR01	METHOD BLANK 01	CONC	<2.00	<0.100	<0.100
		%REC			
		DUP1			
		Q10	01231154	01261137	01261137
HQA AUTH					
BLR02	LCS 01	CONC	112	16.7	N/A
		%REC	112.0	93.5	
		DUP1			
		Q10	01231154	01261137	01261137
HQA AUTH					
BLR03	EXTERNAL QC D1	CONC	42100	505	0.999
		%REC			
		DUP1			
		Q10	01231154	01261137	01261137
HQA AUTH					

FE Iron
MO Molybdenum

MN Manganese

JOB FILE: 96940

DATE: 25 APR 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 2) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 005499-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 16 MAR 0
COMPLETION DATE: 25 APR 0

COLUMN.....	1	2	3	4	5	6
ANALYTE.....	137	138	139	140	141	142
US/QG.....	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254

SAMP #	DESCRIPTION							90
96940	CLAY 1 CELL 4 3/16/01	CONC	<40.5	<40.5	<40.5	6860	<40.5	<40.5
		AREC						
		DUPL						
		QID	54831099	54831099	54831099	54831099	54831099	54831099
96941	CLAY 2 CELL 4 3/16/01	CONC	<40.5	<40.5	<40.5	8330	<40.5	<40.5
		AREC						
		DUPL						
		QID	54831099	54831099	54831099	54831099	54831099	54831099
96942	SILT CELL 4 3/16/01	CONC	<11.2	<11.2	<11.2	1950	<11.2	<11.2
		AREC						
		DUPL						
		QID	54831099	54831099	54831099	54831099	54831099	54831099
BLW01	MET400 BLANK 01	CONC	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3
		AREC						
		DUPL						
		QID	54831099	54831099	54831099	54831099	54831099	54831099
BLW02	LCS 01	CONC	77.7	N/A	N/A	N/A	N/A	N/A
		AREC	93.2					
		DUPL	86.0					
		QID	54831099	54831099	54831099	54831099	54831099	54831099
PCB-1016	PCB-1016			PCB-1221	PCB-1221			
PCB-1232	PCB-1232			PCB-1242	PCB-1242			
PCB-1248	PCB-1248			PCB-1254	PCB-1254			

JOB FILE: 90940

DATE: 25 APR 0

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 2 OF 2) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:

JOB NUMBER: 805490-92310183
TYPE OF SAMPLE: SEDIMENT

RECEIPT DATE: 16 MAR 0
COMPLETION DATE: 25 APR 0

COLUMN.....	7	8	9
ANALYTE.....	143	145	146
USE/NO.....	PCB-1260	Te1XYL-S	OC1BP

SAMP # DESCRIPTION

RO

90940	CLAY 1 CELL 4 3/16/01	CONC 240 3REC DUPL CID 54831099	114% 54831099	130% 54831099	
90941	CLAY 2 CELL 4 3/16/01	CONC 236 3REC DUPL CID 54831099	116% 54831099	115% 54831099	
90942	SELT CELL 4 3/16/01	CONC 18.2 3REC DUPL CID 54831099	95.2% 54831099	117% 54831099	
BLR01	METHOD BLANK 01	CONC <0.3 3REC DUPL CID 54831099	109% 54831099	127% 54831099	
BLR02	LCS 01	CONC 75.5 3REC 90.4 DUPL 81.3 CID 54831099	99.1% 104 54831099	114% 113 54831099	

PCB-1260 PCB-1260

Te1XYL-S 2,4,5,6-Tetrachloro-m-xylene(Surrogate)(40-140 MS)

OC1BP Decachlorobiphenyl(Surrogate (40-140 MS))

INTERNAL QC DATA

Jobfile Number: 94940
Project: GREEN BAY - OLIN-ESTES
Account Number: 00549D-92310183
Date Received: 16 MAR 01

Job#	Sample	Tst	Analyte	% REC	% SDOPL	RPD	OID
94940	BL#02	137	PCB-1016	93.2	103.2	10.2	54831099
94940	BL#02	143	PCB-1260	90.4	97.6	7.7	54831099

JOB FILE: 94943

DATE: 30 APR 01

***** ENVIRONMENTAL CHEMISTRY BRANCH - DATA REPORTING SHEET (PAGE 1 OF 1) *****

JOB DESCRIPTION: GREEN BAY - OLIN-ESTES
CHEM. PRESERVATIVE:JOB NUMBER: 00549D-92310183
TYPE OF SAMPLE: SEDIMENTRECEIPT DATE: 16 MAR 01
COMPLETION DATE: 30 APR 01

COLUMN.....	1	2	3	4
ANALYTE.....	86	100	104	900
MG/KG.....	TOC	OMG	TRPH	OMG-RR

SAMP #	DESCRIPTION						
94943	CLAY 1 CELL 4 3/16/01	CONC 81000 TRFC DUPL 82500 DID 60041117	540 55991107	230 55991110	#1 300 55991110		
94944	CLAY 2 CELL 4 3/16/01	CONC 76800 TRFC DUPL DID 60041117	460 55991107	130 55991110	#1 250 55991110		
94945	SILT CELL 4 3/16/01	CONC 9100 TRFC DUPL DID 60041117	200 55991107	46 55991110	#1 110 55991110		
BL#01	METHOD BLANK 01	CONC <100 TRFC DUPL DID 60041117	<35 55991107	<35 55991110	#1 <35 55991110		
BL#02	LCS 01	CONC 11200 TRFC 112.0 DUPL DID 60041117	910 88.9 55991107	927 90.5 55991110	#1 921 89.9 55991110		
BL#03	EXTERNAL QC 01	CONC N/A TRFC DUPL DID 60041117	N/A 55991107	N/A 55991110	N/A 55991110		

TOC Total Organic Carbon

OMG Oil and Grease

TRPH Total Recoverable Petroleum Hydrocarbons

OMG-RR Oil & Grease (Repeat)


FOOTNOTES:

#1 Repeat value, extracts 4/16/01 - See Corrective Action form.

INTERNAL QC DATA

Jobfile Number: 94943
Project: GREEN BAY - OLIN-ESTES
Account Number: 00549D-92310183
Date Received: 16 MAR 01

Job#	Sample	Tst	Analyte	% REC	% SDUPL	RPD	QID
94943	BL#02	104	TRPH	90.5	87.4	3.5	55991110

Job Description: <u>Green Bay - Olin-Estes</u>		Job File Number: <u>94943</u>	
ECB Quality Assurance Corrective Action Form			
Analysis:	<u>O&G, TRPH</u>	Date:	<u>23-April-01</u>
Analyst:	<u>Harrison</u>	Instrument:	<u>FTIR</u>
<p>Problem: Samples extracted 3/30/01, O&G data OK but TRPH data showed contamination in blank and in samples. TRPH numbers higher than O&G numbers. Contamination probably from silica gel.</p> <p>Sample Number(s) Affected: 94943-94945</p> <p>Recommended Corrective Action: Pre-clean silica gel and re-extract samples</p>			
<p>Corrective Action Taken By Analyst: Samples re-extracted 4/18 which was 33 days from sample receipt on 3/16. Silica gel pre-cleaned.</p> <p>Comments: No contamination with re-extraction. However, O&G values from 4/18 extraction lower than original values. Possibly some analyte loss due to length of time between extractions. Both original and repeat O&G data reported. Repeat TRPH data ONLY is reported.</p>			
Date Corrective Action Taken:		<u>18-April-01</u>	
Reviewed by:			

22-February 98

ecbqaform.xls

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) October 2002		2. REPORT TYPE Final report		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Soil Separation Mobile Treatment Plant Demonstration, Bayport Confined Disposal Facility, Green Bay, Wisconsin				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Trudy J. Olin-Estes, Susan E. Bailey, David W. Bowman, Dennis L. Brandon				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER 0054PD	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Engineer Research and Development Center Environmental Laboratory 3909 Halls Ferry Road Vicksburg, MS 39180-6199				8. PERFORMING ORGANIZATION REPORT NUMBER ERDC/EL TR-02-38	
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13. SUPPLEMENTARY NOTES					
14. ABSTRACT A mobile, self-contained, maximum density separator (MDS) was tested in a 1-day demonstration conducted at the Bayport Confined Disposal Facility in Green Bay, WI. The objective of the demonstration was to evaluate the ability of the equipment to separate a sand fraction meeting a given specification with respect to fines content and PCBs concentration. Additionally, two different methods of excavating and preparing the material for processing with the MDS were tested. One phase of an ongoing effort in evaluating the feasibility of soil washing techniques for volume reduction of dredged material, the field demonstration was preceded by bench-scale fractionation studies. These studies were conducted to determine the magnitude and distribution of contaminants in the material to be processed, and expected contaminant levels in the product streams. The demonstration was the culmination of research into the implementation and interpretation of fractionation studies; type, availability, and suitability of off-the-shelf equipment for sediment processing; and site visits to view different physical separation plant configurations. The results of these cumulative efforts will ultimately be incorporated into summary guidance documents.					
15. SUBJECT TERMS		Hydrocyclone Maximum density separator MDS		PCBs Sediments Soil separation	
Dredged material				Soil washing Volume reduction	
Fractionation studies					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 229	19a. NAME OF RESPONSIBLE PERSON
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code)